MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

VOL. XXIII. AUGUST, 1895. No. 8

INTRODUCTION.

The REVIEW for August, 1895, is based on reports from 2,737 stations occupied by regular and voluntary observers, classified as follows: 149 from Weather Bureau stations; 35 from U. S. Army post surgeons; 2,393 from State Weather Service and voluntary observers; 34 from Canadian stations; 96 received through the Southern Pacific Railway Company; and 30 from U. S. Life-Saving stations; international simultaneous observations are received from a few stations and used together with trustworthy newspaper extracts and special reports.

The WEATHER REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe. Unless otherwise specifically noted, the text is written by the Editor, but the statistical tables are furnished by the Division of Records and Meteorological Data, in charge of Mr. A. J. Henry, chief of that division.

CLIMATOLOGY OF THE MONTH.

GENERAL CHARACTERISTICS.

Low pressures and high temperatures prevailed from the central Rocky Mountain Plateau to the Atlantic Coast. An excess of precipitation fell in the eastern Gulf and South Atlantic States, and over parts of Missouri, Iowa, Kansas, and Nebraska; elsewhere a deficiency was reported. The accumulated precipitation since the beginning of the year shows a deficiency of 25 to 30 per cent in the Ohio Valley and Tennessee, upper and lower Lake regions, upper Mississippi Valley, and the northern Plateau Region. The accumulated temperatures show a great deficiency in the middle and south Atlantic, east Gulf and west Gulf States and Florida, the Ohio Valley and Tennessee, and southern Rocky Mountain Slope, and smaller deficiencies in most other regions. The principal storm was the hurricane that moved toward the west-northwest in a nearly straight line from near Dominica on the 20th, to the southern coast of Texas on the 29th, where it broke up on the 30th. The stage of water was unusually low in the Ohio River and its tributaries.

ATMOSPHERIC PRESSURE.

[In inches and hundredths.]

The distribution of mean atmospheric pressure, reduced to sea level, as shown by mercurial barometers not reduced to standard gravity and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), is shown by isobars on Chart II. That portion of the reduction to standard gravity that depends on latitude is shown by the numbers printed on the right-hand border.

The *mean pressures* during the current month were highest on the coasts of Washington and of the South Atlantic States. The highest was 30.10, at Fort Canby. The lowest mean pressures were in the Rocky Mountain Plateau Region. The lowest was 29.76, at Yuma.

As compared with the normal for August the mean pressure was decidedly in excess in Washington and South Carolina; the greatest excesses were: Fort Canby, Denver, and Edmonston, 0.06. Pressure was generally deficient over the rest of the country; the greatest deficits were Marquette, 0.11, and Quebec, 0.10.

As compared with the preceding month of July the pressures reduced to sea level show a very general fall. The only rises were: Prince Albert, 0.06; El Paso and Santa Fe, 0.01; Independence, 0.03. The maximum falls were: Port Arthur, 0.10; Marquette, Green Bay, and Duluth, 0.08.

AREAS OF HIGH AND LOW PRESSURE.

[By Prof. FRANK H. BIGELOW.]

An inspection of the charts of high and low area tracks for the month of August shows that the usual feeble convectional circulation of the atmosphere prevailed. This is due to the fact that in summer high temperatures extend generally over the entire Northern Hemisphere instead of being so distributed as to show the great differences that are found in winter between the arctic and the tropical zones. The great thermic fall of the winter season produces impulsive discharges from the arctic to the mid-latitude zones, whenever it exists, but in summer there is only a slight temperature gradient, and in consequence only a feeble general circulation from north to south. The observed distribution of the highs and lows may be attributed almost exclusively to the influence of the ocean areas and the northern Rocky Mountain Plateau upon the adjacent masses of air. Thus, on the north Pacific Coast an accumulation of high areas was found, and likewise on the south Atlantic Coast, another concentration of similar conditions was maintained. A number of straggling highs moved from the Plateau to the central valleys, and a few high pressure areas generating in the central valleys moved to the Atlantic coast line, but only one or two instances occurred of a high passing from the Pacific to the Atlantic Coast. This is most readily understood by supposing that the cooler water areas, and the elevated mountain masses, are favorable in summer to holding denser masses of air above them, since the eastward drift is so feeble as to be unable to counteract such a tendency.

Except for one hurricane and one Gulf storm of slight intensity, the tracks of low areas were confined to the northern

circuit over the Lakes and the St. Lawrence Valley, and present few features of special interest. The usual large number of thunderstorms occurred over the districts of observation, and the temperatures were about normal.

MOVEMENT OF CENTERS.

The following table shows the date and location of the center for the beginning and ending of each area of high or low pressure that has appeared on the U. S. weather maps during the month, together with the average daily and hourly velocities. The monthly averages are computed in two ways: first, by considering each path as a unit, and second, by giving equal weight to each day of observation.

Movement of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long. W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	1, a. m.	38	90	4, p. m.	47	58	2,010	3.5	574	24
II	1, a. m.	47	123	1, p. m.	45	124	170	0.5	340	14
III	2, p. m.	41	124	6, p. m.	38	103	1,840	4.0	460	19
IV	5, a. m.	32	81	7, p. m.	46	59	1,540	2.5	616	26
V	7, a. m.	46	124	11, p. m.	36	106	1,920	4.5	427	18
VI	7, p. m.	31	82	11, a. m.	32	80	1,190	3.5	340	14
VII	12, a. m.	46	123	15, a. m.	43	94	1,510	3.0	503	21
VIII	12, p. m.	47	61	13, p. m.	48	59	160	1.0	160	7
IX	13, a. m.	42	86	17, a. m.	31	79	1,620	4.0	405	17
X	15, p. m.	49	124	16, a. m.	50	123	130	0.5	260	11
XI	20, a. m.	51	99	24, p. m.	30	82	2,480	4.5	551	23
XII	22, a. m.	43	123	26, p. m.	37	73	3,070	4.5	682	28
XIII	25, a. m.	47	125	29, a. m.	43	98	1,720	4.0	430	18
XIV	29, p. m.	49	111	31, p. m.	42	93	1,150	2.0	575	24
Sums							20,480	42.0	6,323	
Mean of 14 paths									452	18.8
Mean of 42.0 days									488	20.3
Low areas.										
I	1, a. m.	48	71	2, a. m.	49	68	150	1.0	150	6
II	1, a. m.	45	104	4, a. m.	45	77	1,620	3.0	540	23
III	3, a. m.	49	114	11, a. m.	44	61	3,290	8.0	411	17
IVa	6, p. m.	54	112	16, a. m.	47	64	3,020	10.0	302	13
IVb	7, p. m.	43	101	9, p. m.	38	100	750	2.0	375	16
V	11, p. m.	51	114	14, p. m.	48	78	2,130	3.0	710	30
VI	14, p. m.	52	112	22, a. m.	47	86	3,920	7.5	523	22
VII	14, a. m.	29	91	17, a. m.	34	88	430	3.0	143	6
VIII	16, p. m.	50	110	17, p. m.	44	103	540	1.0	540	23
IX	19, a. m.	51	124	25, p. m.	45	60	3,110	6.5	479	20
X	22, p. m.	42	97	23, a. m.	38	98	230	0.5	460	19
XI	22, a. m.	30	66	29, p. m.	26	97	3,220	6.5	342	14
XIIa	25, p. m.	52	114	28, p. m.	47	61	3,160	5.0	632	26
XIIb	26, a. m.	45	98	27, a. m.	39	113	780	1.0	780	33
XIII	27, p. m.	38	99	28, p. m.	42	86	750	1.0	750	31
XIV	27, p. m.	52	104	28, p. m.	42	86	1,060	1.0	1,060	44
XV	29, p. m.	50	95	31, p. m.	47	69	1,760	2.0	880	37
Sums							28,930	62.0	9,077	
Mean of 17 paths									534	22.3
Mean of 62.0 days									466	19.4

HIGH AREAS.

I.—The month opened with a high covering the central valleys, highest in Illinois. It moved slowly eastward to the North Carolina coast during the 2d, then slowly skirted the coast line, and disappeared in the Gulf of St. Lawrence on the afternoon of the 4th. As it passed northward it was followed by an area of rain and thunderstorms, beginning in the Southern States, and generally covering the Atlantic States on the 3d and 4th.

II.—On the first day of the month a high covered the North Pacific States, which gradually worked southeastward over the Plateau, and died out in Colorado on the 3d. As it approached the Mountain Slope a sporadic system of showers and thunderstorms advanced before it, generally covering the Southwestern States and the lower Mississippi Valley during the 3d, and extending over the Gulf States to the coast on the 4th.

III.—This track of high pressure is hardly to be distinguished from No. II, since it began on the north Pacific Coast during the 2d, crossed the mountains by the same track, and dissipated in Colorado on the 6th. This double formation is common to highs and lows, in the latter case being called secondaries, though more properly they are second formations under similar conditions, and yet really independent of each other. The lows thus produced are to be attributed to the action of two adjacent highs, but the highs are the products of the general atmospheric circulation.

IV.—This is an Atlantic Coast high, first concentrating over South Carolina on the 5th and moving along the coast to the Gulf of St. Lawrence by the evening of the 7th. It seems to have supplied the aqueous vapor, from its western side, for an extensive precipitation in the Ohio Valley and the lower Lake Region, which occurred on the 6th and 7th, with many thunderstorms, the weather also being quite warm.

V.—This area, like II and III, was originally produced on the north Pacific Coast during the 7th, and found its way over the Columbia River Valley to Colorado by the 11th. Its descent from the Plateau was signalized by an area of precipitation that preceded it over the Slope, and especially in the Missouri Valley. It is to be noted that these rainfalls are sometimes independent of any marked barometric depression, and must be produced by the direct cooling caused by the flowing of cool air into regions of higher temperature holding partially saturated vapor in the atmosphere. It would be very hard to show that the lowering of temperature in these cases is exclusively due to cooling through expansion.

VI.—This area can hardly be said to have had a definite track. It hung over the Carolina coast line for four days, 7th to 11th, the highest readings of the barometer working northward till the afternoon of the 9th, and then settling southward during the 10th and 11th. The weather was generally fair while this dominated, but on the 10th, p. m., an extensive series of thunderstorms occurred in the Mississippi Valley.

VII.—This was quite a vigorous area that began in the North Pacific States during the 12th, and crossing the Mountains on the 13th, advanced to Iowa by the morning of the 15th, where the central point could no longer be traced.

VIII.—This was a sporadic formation in the Gulf of St. Lawrence during the 12th and 13th and had no features to record.

IX.—This high seems to have formed over the middle Lake Region on the 13th, whence it moved to Lake Ontario, and then was suddenly diverted southward to the Virginia coast and proceeded to Florida where it disappeared on the 17th. The progress of this area to the south was the probable occasion of the very continuous period of rainfall during the 13th to the 17th that took place in the South Atlantic and the east Gulf States, being most heavy at some points on the afternoon of the 17th.

X.—In this case is found another instance of a high area forming on the north Pacific Coast (15th), and after lingering over the northern Plateau (16th and 17th), descending to the central valleys, across the Dakotas, Iowa and Illinois, to Kentucky, where it died out on the 20th. This area showed also a tendency to cause precipitation in its front as it crossed the Missouri and the Mississippi valleys.

XI.—This area followed the preceding number so closely in portions of its path (20th) as to form practically a single area with two centers of highest pressure. It began north of North Dakota on the 20th, passed over the Lake Region to the New Jersey coast (21st, 22d), and thence turned southward to Florida, where it disappeared on the night of the 24th. Like IX, this area caused some precipitation in the Gulf States as it moved southward over the Atlantic States.

XII.—This number is the only one of the entire month

that crossed the United States from the Pacific to the Atlantic Coast. It formed in Oregon on the 22d, crossed the middle Plateau on the 23d, the middle Slope on the 24th, reached the South Carolina coast on the 25th, and advancing northward, dissipated on the 26th opposite Delaware.

XIII.—This formed in the State of Washington on the 25th, passed over Montana and South Dakota (27th, 28th), and faded away in Nebraska during the 29th.

XIV.—This area formed to the north of Montana during the 29th, and advanced to Iowa by the 31st, being more closely related to the circulation of the northern circuit that is now renewing itself.

LOW AREAS.

I.—This first low properly belongs to the month of July, as it is found in the Gulf of St. Lawrence on the 1st and 2d only.

II.—This depression began in the western portion of South Dakota on the 1st, moved north to the Red River Valley in the evening, to Lake Superior on the 2d, and thence to Upper Canada, where it disappeared on the 4th. On the morning of the 2d a secondary was developed over northern Texas and Oklahoma, the trough stretching to northern Minnesota, attended by some precipitation in the Southwestern States.

III.—This low area appeared near Edmonton, in Alberta, on the morning of the 3d, passed southeastward over North Dakota on the 4th, the Lakes on the 5th, 6th, and descended the St. Lawrence Valley during the 7th and 8th, disappearing near the coast of Nova Scotia on the 11th. Its progress over the central valleys and Lake Region was characterized by a large area of local precipitation and thunderstorms, rain occurring in the Missouri Valley on the 4th, in the Lake Region on the 5th, in the Ohio Valley, the Middle and South Atlantic States on the 6th, in the Middle States and New England on the 7th; while it lingered over the Gulf of St. Lawrence during the 8th to the 11th; it seems to have caused very little precipitation.

IV.—This storm area originated in exactly the same place, near the one hundred and twelfth meridian in Alberta, as III on the 6th, and pursued the same track to the Gulf, where it disappeared on the 15th. However, a branch, IV*b*, separated on the afternoon of the 7th, which found its way to South Dakota and hung there during the 8th and 9th. The precipitation in this case was not so pronounced, though some local storms, quite distant from the center, accompanied it in the Ohio Valley.

V.—This area was first observed on the one hundred and fifteenth meridian near Calgary on the 11th in the afternoon, whence it passed to the Saskatchewan Valley on the 12th, to South Dakota on the 13th, from which it moved in the usual northern path over the Lakes to Upper Canada, where it disappeared on the afternoon of the 14th. A very little rain fell in the Missouri Valley, but its place was apparently taken up by a high, which tended to destroy it, in crossing the Lake Region.

VI.—This storm also originated in Alberta on the 14th and pursued its course in the regular northern circuit to the Gulf of St. Lawrence, which it reached on the 18th. During the period from the afternoon of the 18th to the forenoon of the 22d it hung over the Gulf, the center occupying various positions between Nova Scotia, Anticosti, and Newfoundland. No rain fell till the 17th, when it was central over Upper Michigan; but during the afternoon of this day copious rains occurred in the lower Lake Region, the Middle States, the South Atlantic and Gulf States; the clearing-up rains fell in New England on the 18th.

VII.—This was a threatening storm center on the Gulf Coast from the 14th a. m. to the 17th a. m., when it finally dissipated in Alabama. Local rains occurred daily in the Gulf States during this entire period, being, however, produced by the high that was central on the Carolina coast.

VIII.—This was a very feeble storm impulse in Montana and South Dakota, rather than a definite formation during the 16th and 17th, the track being really quite indefinitely indicated.

IX.—This was the only low area that passed from the Pacific Coast to the Atlantic during the entire month. It formed in British Columbia on the 19th, passed eastward in the northern circuit in a regular march, and reached Nova Scotia on the 25th, where it broke up. Light rain began in the Missouri Valley on the 21st, spread over the Lakes and the Ohio Valley on the 22d and 23d, the Middle States on the 24th, and New England on the 25th, the southern districts receiving none from this low area.

X.—This was a very small depression or secondary in Nebraska and Kansas during the 22d and 23d, which had no special features of interest, except some rain and thunderstorms in the lower Missouri Valley on the 23d.

XI.—This is the only hurricane of the month of August, and our information regarding it is very limited, inasmuch as its course lay to the southward, and it did not recurve but broke up on the Texas coast. The first report was from Havana, 22d, "Storm West Dominica, Gangoite." Its future course indicates, however, that it must have been between the 65th and 70th meridians, and in latitude + 16°, at this time, rather to the southeast of Dominica. Indications of the approaching storm were seen at the Florida and the Cuba stations during the 23d and 24th, as it moved slowly westward. On the 25th it was south of middle Cuba, on the 26th between the west end of Cuba and Yucatan, and it crossed the tip of Yucatan during the 26th. The following message was sent at 10.30 a. m., 26th, to all stations from Tampa to Brownsville: "Reports indicate the presence of a dangerous storm southwest of Cuba, moving towards the Gulf. Notify all shipping interests to be on the alert." On the 27th the center was west of Yucatan, and this message was sent to Port Eads: "Direct observer to hold vessels going out of river till further notice." The observations reported from Merida, Yucatan, were of great service in following this cyclone, and upon them the warnings were largely founded. Several preliminary warnings were sent during the 28th, and finally on the morning of the 29th, an emergency warning to the west Gulf stations: "Hoist hurricane signal. Center of storm apparently near Corpus Christi moving north of west. Indications are that the storm will not recurve." The barometer reading at Merida at 7 a. m., 27th, was 29.75 and falling; at 7 a. m. of the 28th, 29.83, and rising; on the morning of the 29th, the reading at Corpus Christi was 29.86, with 20 miles of wind; in the evening, 29.82, with 38 miles of wind from the north. The storm struck the coast at Brownsville during the 29th, doing some damage in the town, and broke up on the 30th with heavy rain at Galveston, 3.58, and Corpus Christi, 0.66 inch.

XII.—This low appeared in Alberta on the 23d, and advanced to Winnipeg by the morning of the 25th, where it turned south to South Dakota, and threw out a secondary, XII*b*, to Utah, which disappeared on the 26th. XII*a* now moved to the north of Lake Superior and proceeded rapidly in the northern circuit to the Gulf of St. Lawrence, where it dissipated on the 28th. Local showers and thunderstorms accompanied the southeast section of the depression, precipitation falling chiefly in the Ohio Valley and the middle States during the 26th and 27th.

XIII.—This was a feeble depression formed in Colorado on the 27th, which moved northeastward and joined XIV near the lower end of Lake Michigan on the 28th, p. m.

XIV.—This was another feeble low thrown out by the high covering the Dakotas; it first appeared in the Saskatchewan Valley on the 27th, and advanced to lower Lake Michigan, where it dissipated in connection with XIII.

XV.—This low formed on the afternoon of the 29th in the Red River Valley, moved to western Minnesota and thence advanced over Lake Superior on the 30th, to the Gulf of St. Lawrence by the afternoon of the 31st. Thunderstorms and local rains occurred in the Ohio Valley, the Middle States, and New England during the passage of the storm.

LOCAL STORMS.

[By Mr. A. J. HENRY.]

The first decade of August was unmarked by local storms of unusual extent or severity.

The record for this period is confined to local showers attended by the phenomena usual in this season, thunder, lightning, strong, but not destructive winds, and sometimes hail. Deaths from lightning stroke are reported in comparatively few instances. No other loss of life is recorded except by drowning in the waters contiguous to Coney Island, where on Sunday, the 4th, during a violent thunder storm the accompanying wind imperiled excursion boats, and overturned lighter craft. Fruit trees and fruit were destroyed in this storm, and hotels were injured by lightning, but no great loss of property resulted.

No loss of human life by floods or by hurricane is reported during the month. Storms similar in character to the one mentioned above occurred on the 6th at widely separated places, the most severe being in the vicinity of Buffalo, N. Y., and in central and northern Ohio.

On the 8th, Grand Junction and Del Norte, Colo., and Tucson, Ariz., were visited by cloud-bursts. Railroads and highways were washed out, and a few residences were injured.

Similar storms occurred on the 9th at Louisiana, Mo., Junction City and Eldorado, Kans., and Minneapolis, Minn.

A letter of September 9, from Mr. W. H. Fountain, superintendent of the waterworks at Eldorado, Kans., describes the destruction of the standpipe at that place by the storm of August 9, as follows:

> All the evening the weather was quite threatening and at nightfall the clouds looked quite ominous and black. About 10 p. m. the storm broke on the city. It came almost directly from the north. For twenty minutes or more the wind blew a gale and much rain fell; then there was a lull in the storm for a few minutes, when the wind came again in a terrific gust, striking the houses in the vicinity of the standpipe almost like a wall, and it is the supposition that at this time the standpipe fell. Some of the people in the vicinity of the standpipe remember a roar at this time, which they then thought was thunder, but when they learned of the accident felt confident it was the crash of the standpipe. * * * It was noticeable that the clouds hung very low. * * * The storm was gusty and had much the appearance of being cyclonic. We have had but few, if any, storms that came stronger or more gusty than this one.

During the night of the 10th and on the succeeding day the first destructive storm of the month appeared. At Cleveland, Ohio, a power house was totally wrecked, estimated loss, $20,000; at Ashtabula, Ohio, injuries to the dock occurred, estimated loss, $10,000; and in the counties of Platte and Colfax, Nebr., 50 miles of telegraph line were blown down, and the furious rain caused large destruction of growing crops and injury to railroad embankments.

On the 11th a severe storm at Baltimore destroyed buildings including an unfinished church, and telegraph and telephone lines to the value of about $150,000. At the same time a storm raged over four counties of eastern Pennsylvania, where the losses in two boroughs are estimated at $50,000, caused in part by lightning and hail, but chiefly by wind. On that day thunderstorms also visited Penn Yan, Dansville, and Ticonderoga, N. Y.; Flemington, N. J.; Warren, Ohio; and Rensselaer, Ind. All were of considerable violence, and losses in the last-named town, caused by wind, reached about $30,000.

On the 13th standing and harvested grain in four Minnesota counties were disastrously affected by wind, rain, and hail.

On the 16th "the severest wind storm since fifteen years ago" raged at Mankalo, Miss.

Buffalo, New York, was visited on the 17th by a severe storm, in which lightning and hail did considerable damage.

On the 19th, Harvey County, Kans., suffered a loss of one-half its growing crops by hail.

On the 23d, in central Michigan, and a half dozen counties in eastern Iowa, unusually heavy showers occurred. In some places the precipitation exceeded that of any during many previous years. Copious rain fell on the same date in Arizona, south and west of Phœnix, in which a mile of railroad track was carried away. In all of these districts prolonged droughts had prevailed, and the benefit to crops was larger than the loss of property.

Boothbay Harbor, Me., was swept by a strong wind, attended by rain and thunder and lightning on the 25th. Vessels in the harbor suffered considerable damage, and by the upsetting of a yacht, 3 persons were drowned.

On the 28th, Syracuse, N. Y., and Zanesville and Cleveland, Ohio, were visited by a wind and rain storm of great violence, but no serious loss of property resulted.

On the 29th, wind destroyed a church at Waycross, Ga., and storms of wind and rain of unusual severity were reported at Galveston, Tex., Clarksville, Tenn., and several points in the interior of Tennessee.

On the 31st an inch of rain fell in twenty-five minutes in New York, and the storm's violence extended to the suburbs. Buildings were injured by the wind, and lightning struck in several places. No loss of life or large destruction of property was reported.

TEMPERATURE OF THE AIR.

[In degrees Fahrenheit.]

The mean temperature is given for each station in Table II, for voluntary observers. In Table I, for the regular stations of the Weather Bureau, both the mean temperatures and the departures from the normal are given for the current month.

The *monthly mean temperature* published in Table I, for the regular stations of the Weather Bureau, is the simple mean of all the daily maxima and minima; for voluntary stations a variety of methods of computation is necessarily allowed, as shown by the notes appended to Table II.

The *distribution* of the monthly mean temperature of the air over the United States and Canada is shown by the dotted isotherms on Chart II; the lines are drawn over the high irregular surface of the Rocky Mountain Plateau, although the temperatures have not been reduced to sea level, and the isotherms, therefore, relate to the average surface of the country occupied by our observers; such isotherms are controlled largely by the local topography, and should be drawn and studied in connection with a contour map.

The *regular diurnal period* in temperature is shown by the hourly means given in Table IV for all stations having self-registers.

The extreme mean temperatures were: Yuma, 90.9; Key West and Galveston, 83.0.

As compared with the normal for August the mean temperature for the current month was, with very few exceptions, decidedly in excess on the Atlantic Coast and westward to the one hundredth meridian. It was deficient in the lower St. Lawrence Valley and the Rocky Mountain Region. The greatest excesses were: Washington, D. C., 3.7; Milwaukee and Parkersburg, 3.5. The greatest deficits were: Los Angeles, 3.7; Medicine Hat, 3.5; and Qu'Appelle, 2.9.

Considered by districts the mean temperatures for the current month show departures from the normal as given in Table 1. The greatest positive departure was: Middle Atlantic, 2.7. The greatest negative departures were: Ohio Valley and Tennessee, 2.6; upper Mississippi, 2.4; southern Pacific Slope, 2.3.

The years of highest and lowest mean temperature are shown in Table I of the REVIEW for August, 1894. The mean temperature for August, 1895, was the highest on record at Nantucket, 68.8; Philadelphia, 77.4; Harrisburg, 75.0; Pittsburg, 74.5; Parkersburg, 76.2; Columbus, Ohio, 75.6; Green Bay, 68.4; Milwaukee, 71.6; Jacksonville, 82.9; Palestine, 82.3. It was the lowest on record at Tatoosh Island, 54.6; Neah Bay, 57.4; Eureka, 54.0; Carson City, 65.2; Fresno, 80.6.

The *maximum and minimum temperatures* of the current year are given in Table I. The highest maxima were: Yuma, 114 (5th); Fresno, 110 (5th); Red Bluff, 107 (4th); Fort Smith, 106 (21st); Walla Walla, 102 (2d); Huron, 13th, Concordia, 27th, and Abilene, 14th, 100. The lowest maxima were: Eureka, 66 (5th); Tatoosh Island, 70 (29th). The highest minimum was: Corpus Christi, 73 (2d). The lowest minima were: St. Vincent, Bismarck, and Port Crescent, 32 on the 20th, 21st, and 26th, respectively.

The *years of highest maximum and lowest minimum temperatures* are given in the last four columns of Table I of the current REVIEW. During the present month the maximum temperatures were the highest on record at: Harrisburg, 95; Parkersburg, 96; Charleston, 98; Jupiter, 93; Port Angeles, 88; Carson City, 95. The minimum temperatures were the lowest on record at: Harrisburg, 50; Bismarck, 32; Williston and Havre, 34; Neah Bay, 40; Port Angeles and Seattle, 38; Fort Canby, 48; Astoria and Eureka, 45; Carson City, 34; Fresno, 51; San Diego, 54.

The *greatest daily range of temperature and the extreme monthly range* are given for each of the regular Weather Bureau stations in Table I, which also gives data from which may be computed the extreme monthly ranges for each station. The largest values among the greatest daily ranges were: Havre, 51; Idaho Falls, 50; Baker City and Lander, 49. The smallest values were: Block Island and Hatteras, 14; Port Eads and Galveston, 15; Nantucket and Jupiter, 16; Kittyhawk, Key West, and San Diego, 17. Among the extreme monthly ranges the largest values were: Bismarck, 66; Huron, 63; Havre and Williston, 62; Carson City, 61; Pierre, 60. The smallest values were: Hatteras, 19; Corpus Christi, Port Eads, and Key West, 20.

The *accumulated monthly departures* from normal temperatures from January 1 to the end of the current month are given in the second column of the following table, and the average departures are given in the third column, for comparison with the departures of current conditions of vegetation from the normal conditions.

Districts.	Accumulated departures.		Districts.	Accumulated departures.	
	Total.	Average.		Total.	Average.
	°	°		°	°
Upper Lake	+ 0.7	+ 0.1	New England	— 2.3	— 0.3
North Dakota	+ 4.7	+ 0.6	Middle Atlantic	—10.1	— 1.3
Missouri Valley	+ 1.1	+ 0.2	South Atlantic	—16.9	— 2.1
Northern Plateau	+ 5.0	+ 0.6	Florida Peninsula	—13.0	— 1.6
			East Gulf	—18.7	— 2.3
			West Gulf	—17.7	— 2.2
			Ohio Valley and Tenn.	—13.3	— 1.7
			Lower Lake	— 5.5	— 0.7
			Upper Mississippi	— 2.1	— 0.3
			Northern Slope	— 9.9	— 1.2
			Middle Slope	— 7.8	— 1.0
			Southern Slope (Abilene)	—18.9	— 2.4
			Southern Plateau	— 9.0	— 1.1
			Middle Plateau	— 9.3	— 1.2
			North Pacific	— 0.5	— 0.0
			Middle Pacific	— 2.7	— 0.3
			South Pacific	— 6.7	— 0.8

MOISTURE.

The *quantity of moisture* in the atmosphere at any time may be expressed by means of the weight contained in a cubic foot of air, or by the tension or pressure of the vapor, or by the temperature of the dew-point. The mean dew-points for each station of the Weather Bureau, as deduced from observations made at 8 a. m. and 8 p. m., daily, are given in Table I.

The *rate of evaporation* from a special surface of water on muslin at any moment determines the temperature of the wet-bulb thermometer, but a properly constructed evaporometer may be made to give the *quantity* of water evaporated from a similar surface during any interval of time. Such an evaporometer, therefore, would sum up or integrate the effect of those influences that determine the temperature as given by the wet bulb; from this quantity the *average humidity of the air* during any given interval of time may be deduced.

The *sensible temperature* experienced by the human body and attributed to the atmosphere depends not merely upon the temperature of the air, but equally upon the dryness, the velocity of the wind, and the suddenness of atmospheric changes. The temperature of the wet-bulb thermometer as obtained by the whirling apparatus used in the shaded shelter corresponds to the temperature felt by persons standing in the shade of trees or houses, exposed to a natural breeze of at least 6 miles per hour. This temperature and its depression below the dry bulb are the fundamental data for all investigations into the relations between human physiology and the climate. In order to present a monthly summary of the atmospheric conditions from a hygienic and physiological point of view, Table VIII has been prepared, showing the maximum, minimum, and mean readings of the wet-bulb thermometer at 8 a. m. and 8 p. m., seventy-fifth meridian time.

PRECIPITATION.

[In inches and hundredths.]

The *distribution of precipitation* for the month of August, 1895, as determined by reports from about 2,500 stations, is exhibited on Chart III. The numerical details are given in Tables I, II, and III.

The precipitation for the current month was heaviest, 5 to 14 inches, on the Gulf Coast from Louisiana to Florida, and the interior of Georgia and South Carolina, but least, namely zero, on the coast and central parts of California.

The *diurnal variation* is shown by Table XII, which gives the total precipitation for each hour of seventy-fifth meridian time, as deduced from self-registering gauges kept at about 43 regular stations of the Weather Bureau; of these 37 are float gauges and 6 are weighing gauges.

The *normal precipitation* for each month is shown in the Atlas of Bulletin C, entitled "Rainfall and Snow of the United States, compiled to the end of 1891, with annual, seasonal, monthly, and other charts."

The *current departures* from the normal precipitation are given in Table I, which shows that precipitation was in excess in the St. Lawrence Valley, the east Gulf States, Georgia, and a small portion of Missouri, Kansas, Nebraska, and Iowa. Elsewhere it was generally deficient. Large excesses were: Montreal, 4.8; Wichita and Atlanta, 4.0; Omaha and Columbia, 3.8; Augusta, 3.7; Chicago, 3.5. The large deficits were: Kittyhawk, 4.5; Philadelphia, 4.2; Jacksonville, 4.1; Raleigh, 4.0; Norfolk, 3.8.

The *average departure* for each district is also given in Table I. By dividing these by the respective normals the following corresponding percentages are obtained (precipitation is in excess when the percentages of the normal exceed 100):

Above the normal: East Gulf, 122; lower Lake, 110; Missouri Valley, 117; middle Slope, 120; southern Plateau, 112.

Normal: Middle Pacific, 100.

Below the normal: New England, 91; Middle Atlantic, 55; South Atlantic, 88; Florida Peninsula, 90; west Gulf, 75; Ohio Valley and Tennessee, 58; upper Lake, 94; North Dakota, 63; upper Mississippi, 81; northern Slope, 63; Abilene

(southern slope), 81; middle Plateau, 14; northern Plateau, 66; north Pacific, 38; southern Pacific, 0.

The *years of greatest and least precipitation* are given in the REVIEW for August, 1894. The precipitation for the current month was the greatest on record at Concordia, 4.98; Atlanta, 8.55. It was the least on record at Sault Ste. Marie, 1.34; Harrisburg, 2.36; Philadelphia, 0.59; Jacksonville, 2.54; Palestine, 0.06; San Diego, 0.00; Salt Lake City, 0.02; Havre, 0.04; Spokane, 0.03.

The *total accumulated monthly departures* from normal precipitation from the beginning of the year to the end of the current month are given in the second column of the following table; the third column gives the ratio of the current accumulated precipitation to its normal value.

Districts.	Accumulated departures.	Accumulated precipitation.	Districts.	Accumulated departures.	Accumulated precipitation.
Excesses.	*Inches.*	*Per ct.*	*Deficits.*	*Inches.*	*Per ct.*
North Dakota	+ 0.10	101	New England	− 3.60	88
Abilene (southern Slope)	+ 3.90	121	Middle Atlantic	− 4.90	85
Southern Plateau	+ 1.10	115	South Atlantic	− 0.20	100
			Florida Peninsula	− 2.70	92
			East Gulf	− 0.80	98
			West Gulf	− 2.00	93
			Ohio Valley and Tenn.	− 8.70	74
			Lower Lakes	− 6.20	73
			Upper Lakes	− 5.90	73
			Upper Mississippi	− 6.10	75
			Missouri Valley	− 2.60	89
			Northern Slope	− 0.20	98
			Middle Slope	− 0.30	98
			Middle Plateau	− 0.90	89
			Northern Plateau	− 3.40	69
			North Pacific	− 1.30	96
			Middle Pacific	− 2.20	88
			South Pacific	− 2.30	81

HAIL AND SLEET.

The following are the dates on which hail fell in the respective States:

Alabama, 7, 27, 28. Arizona, 4, 6, 12, 21, 22. Arkansas, 11. California, 27. Colorado, 3, 5 to 11, 20, 28, 29, 31. Delaware, 16. Georgia, 27. Idaho, 1, 14, 28. Illinois, 11, 14, 18, 27, 29. Indiana, 6. Iowa, 2, 4, 9, 12, 18, 22, 27, 30. Kansas, 19. Kentucky, 9, 20. Maryland, 6, 10, 11, 16, 31. Massachusetts, 17, 21. Michigan, 9, 11, 17, 18. Minnesota, 4, 5, 9, 13, 14, 16, 26, 27, 28. Missouri, 4, 18. Montana, 8, 25. Nebraska, 4, 7, 8, 10, 11, 12, 18, 22, 23, 27. Nevada, 13, 27. New Jersey, 4, 16. New Mexico, 7, 29. New York, 4, 6, 17, 18, 28. North Carolina, 27. North Dakota, 8, 13, 21, 22, 26. Ohio, 3, 6, 17, 24, 28. Oklahoma, 2. Oregon, 6. Pennsylvania, 5, 6, 11, 13, 18, 24. South Carolina, 26, 28. South Dakota, 2, 7, 13, 16, 21. Tennessee, 14. Texas, 28. Utah, 8, 12, 18, 30. Vermont, 21. Wisconsin, 14, 26, 23. Wyoming, 30.

WIND.

The *prevailing winds* for August, 1895, viz, those that were recorded most frequently, are shown in Table I for the regular Weather Bureau stations.

The *resultant winds*, as deduced from the personal observations made at 8 a. m. and 8 p. m., are given in Table IX. These latter resultants are also shown graphically on Chart II, where the small figure attached to each arrow shows the number of hours that this resultant prevailed, on the assumption that each of the morning and evening observations represents one hour's duration of a uniform wind of average velocity. These figures indicate the relative extent to which winds from different directions counterbalanced each other.

HIGH WINDS.

Maximum wind velocities of 50 miles or more per hour were reported at regular stations of the Weather Bureau as follows (maximum velocities are averages for five minutes; extreme velocities are gusts of shorter duration, and are not given in this table):

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		Miles				*Miles*	
Cleveland, Ohio	28	52	se.	Huron, S. Dak	13	50	sw.
El Paso, Tex	5	50	ne.	Huron, S. Dak	21	60	s.
El Paso, Tex	30	55	ne.	New York, N. Y	4	62	sw.
Huron, S. Dak	7	65	nw.	Oklahoma, Okla	10	50	se.

SUNSHINE AND CLOUDINESS.

The quantity of sunshine, and therefore of heat, received by the atmosphere as a whole is very nearly constant from year to year, but the proportion received by the surface of the earth depends largely upon the absorption by the atmosphere, and varies with the distribution of cloudiness. The sunshine is now recorded automatically at 17 regular stations of the Weather Bureau by its photographic, and at 21 by its thermal effects. At two stations records are kept by both methods. The photographic record sheets show the apparent solar time, but the thermometric sheets show seventy-fifth meridian time. For convenience the results are all given in Table XI for each hour of mean local time. The cloudiness is determined by numerous personal observations at all stations during the daytime, and is given in the column of "average cloudiness" in Table I; its complement or clear sky is given in the last column of Table XI.

COMPARISON OF SUNSHINE AND CLEAR SKY.

The sunshine registers give the *duration* of direct sunshine whence the percentage of possible sunshine is derived; the observer's personal estimates give the percentage of *area* of clear sky. It should not be assumed that these numbers should agree, and for comparative purposes they have been brought together, side by side, in the following table, from which it appears that, in general, the instrumental record of percentages of duration of sunshine is almost always larger than the observer's personal estimate of percentages of area of clear sky; the average excess for August, 1895, is 12 per cent for photographic records, and 14 per cent for thermometric records. The details are shown in the following table:

Difference between instrumental and personal observations of sunshine.

Photographic stations.	Instrumental.	Personal.	Difference.	Thermometric stations.	Instrumental.	Personal.	Difference.
Portland, Oreg. *	93	88	5	Portland, Oreg. *	92	88	4
Salt Lake City, Utah ‡	88	52	36	Cincinnati, Ohio *	85	61	24
Phœnix, Ariz. †	85	54	31	Philadelphia, Pa	83	57	26
Helena, Mont	81	76	5	Baltimore, Md	81	64	17
Galveston, Tex	79	72	7	Des Moines, Iowa	81	65	16
Washington, D. C	78	67	11	Chicago, Ill	79	67	12
Dodge City, Kans	75	65	10	Portland, Me	79	45	34
Santa Fe, N. Mex	74	54	20	Detroit, Mich	77	65	12
Denver, Colo	72	56	16	Little Rock, Ark	77	61	16
Cleveland, Ohio	69	57	12	St. Louis, Mo	76	60	16
Bismarck, N. Dak	68	69	− 1	Louisville, Ky	74	53	19
San Diego, Cal	67	69	− 2	Rochester, N. Y	72	56	16
Kansas City, Mo	66	50	16	New York, N. Y	68	56	12
Vicksburg, Miss	66	56	10	Boston, Mass	67	53	14
Savannah, Ga	59	57	2	Marquette, Mich	66	45	21
Eastport, Me	56	42	14	Columbus, Ohio	62	48	14
Cincinnati, Ohio * §	.....	.....	.....	Atlanta, Ga	61	47	14
				New Orleans, La	60	63	− 3
				Wilmington, N. C	56	54	2
				Buffalo, N. Y	55	45	10
				San Francisco, Cal	54	59	− 5

* Records kept by both methods.
† All values for 16 days only.
‡ Thermometric record discontinued.
§ Photographic record incomplete.
Key West, Fla., Memphis, Tenn., Norfolk, Va., New Haven, Conn., Seattle and Spokane, Wash., discontinued.

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table X, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

The dates on which reports of thunderstorms for the whole country were most numerous were: 6th, 253; 11th, 268; 28th, 208.

Thunderstorm reports were most numerous in Ohio, 298; North Carolina, 202; Missouri, 199; Florida, 194; Colorado, 192; Pennsylvania, 180; Louisiana, 178.

Thunderstorms were most frequent in Florida and Louisiana, 31 days; Colorado, Mississippi, and New Mexico, 28; Alabama and South Carolina, 27; Minnesota, North Carolina, Tennessee, and Texas, 26.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, from the 1st to the 8th, inclusive, and also the 30th and 31st. On the remaining twenty-one days of this month 89 reports were received, or an average of about four per day. The dates on which the number of reports especially exceeded the average were: 9th, 29; 11th, 14; 18th, 12.

Auroras were reported by a large percentage of observers in North Dakota, 40 per cent; Minnesota, 26; Wisconsin, 22.

Auroras were reported most frequently in North Dakota, 7 days; Minnesota, New Hampshire, and Wisconsin, 6.

DAMAGE BY LIGHTNING.

The statistics of casualties by lightning so far as concerns property, are fairly well given in the preceding section on local storms by Mr. A. J. Henry. The injuries done to individuals, as furnished by Mr. Alexander McAdie, are as follows:

First decade: killed, 18; injured, 27. Second decade: killed, 28; injured, 35. Third decade: killed, 20; injured, 32. Total for the month: killed, 76; injured, 84.

INLAND NAVIGATION.

The *extreme and average stages of water* in the rivers during the current month are given in Table VII, from which it appears that the only river that has reached the danger line was the Red River, at Shreveport, La., on the 1st. Other rivers that rose rather high were the Arkansas, which reached a maximum on the 1st and 3d, and the Savannah which was highest at Augusta on the 23d. The average stage of the Missouri, upper Mississippi and the Ohio rivers, and their tributaries has been remarkably low, greatly interfering with navigation.

METEOROLOGY AND MAGNETISM.

For general remarks relative to this subject see page 7 of the REVIEW for January, 1895.

The comparison of the air temperature with magnetic horizontal force is shown in detail on Chart V, and the special features of the August curves are as follows:

The correction for slope is +1 for the horizontal force at Toronto and Washington. The reduction to a mean base line is +6° for temperature, and +2 for magnetic force. For the dates August 9 to 13, inclusive, being days of wide amplitude, the resulting values of magnetic force are divided by 2, in order to preserve a convenient diagram.

STATE WEATHER SERVICES.

The following extracts in regard to the general weather conditions in the several States and Territories are taken from the monthly reports of the State Weather Services.

Snowfall and rainfall are expressed in inches.

Alabama.—The month as a whole was one of frequent showers and continued warmth with considerably more than the average amount of cloudiness. There was not a single day on which rain did not fall in some portion of the State. The continued moisture seriously retarded the fruitage of cotton. No severe storms occurred and but very little damage resulted to the abundant corn and other crops.

Arkansas.—The monthly mean temperature was 1.0° above the normal and the rainfall was 0.66 less than the usual amount. The month as a whole was very unfavorable for cotton. In the early part of the month heavy showers occurred in most parts of the State, which prevented farmers from cleaning their crops and also induced a very rank growth of the plant, and complaints were numerous of the plant not fruiting well. The corn crop promises well, though the late planting would have been better with seasonable rains during the middle and latter part of the month. The weather has been very favorable for saving fodder and haymaking. At the close of the month rain was much needed for late potatoes and fall gardens generally, and in some sections pastures were failing and water becoming scarce.

California.—The mean temperature for the State was 0.7° below the normal and the rainfall normal. Thunder and lightning occurred at Bodie on the 12th; Shasta on the 19th; Greenville, Quincy, and Edmanton (all in Plumas County), on the 26th; Iowa Hill on the 27th, and Yreka on the 28th and 29th. Light frosts were reported from Bodie on the 3d, 8th, 9th, 10th, 13th, 14th, 19th, 20th, and 26th; Greenville on the 16th, 17th, 19th, 22d, 26th, and 31st; Quincy on the 17th, 18th, and 26th; and Julian on the 27th. Killing frosts were reported from Bodie on the 1st, 15th, 16th, and 17th; Julian on the 28th and 30th; and Greenville on the 27th.

Colorado.—The month was slightly warmer than the average, the mean temperature being about one degree above the normal. The mean precipitation for the State was nearly half an inch greater than the normal. Rainfall was generally in excess over the mountain districts, San Luis Valley, and Otero and Bent counties, but over limited areas in the eastern border counties, the upper Arkansas and Platte Valleys the amounts recorded were less than usual.

Connecticut.—(See *New England.*)

Delaware.—(See *Maryland.*)

Florida.—The mean temperature, 81.3°, was 0.5° less than the normal. The highest temperature, 99°, was recorded at Earnestville on the 20th, and the lowest, 60°, at Moseley Hall on the 27th. The average precipitation was 6.20, or 0.43 less than the usual amount. The greatest amount, 9.92, was reported from Orange Lake, and the least, 1.08, from Amelia. Thunderstorms were frequent in all sections of the State.

Georgia.—The average precipitation from the records of 59 stations was 7.55, ranging from 15.38 at Dahlonega, to 3.99 at Columbus. The total rainfall at Atlanta, 8.55, was about 1 inch more than that for any August during the past 17 years at that station. The average temperature for 51 stations was 79.1. The highest temperature, 100°, was recorded at Millen on the 20th, and the lowest, 47°, at Clayton on the 2d.

Idaho.—The mean temperature for the State was 65.8°. The highest daily temperature, 106°, was recorded at Lewiston on the 2d, and the lowest, 24°, at Hailey on the 9th. The average total precipitation was 0.25; the greatest amount, 1.09, occured at Grangeville, and the least (no rain) was reported from American Falls, Kootenai, and Murray. Thunderstorms were frequent in several sections of the State. Frosts were reported at Chesterfield on the 9th, 10th, 11th, 14th, 26th, 30th, and 31st; at Hailey, 9th; Martin, 7th, 19th, and 26th; Murray, 14th; Paris, 9th; St. Anthony, 9th, and 16th; Salubria, 10th and 14th, and Swan Valley, 9th, and 10th.

Illinois.—The dry period, which began July 30, continued practically unbroken until the 23d, although a few thundershowers occurred on the 5th, 6th, 10th, and 11th, and in central and southern sections, the 18th to 20th. The average total precipitation was 2.85, or 0.16 below the normal. The greatest fall occurred in the northeast corner of the State, Chicago reporting 6.49; La Grange, 5.69; Oswego, 5.00; Wheaton, 4.99; Aurora, 4.80; and St. Charles, 4.35. The least occurred in the extreme southern part, Cairo reporting but 0.71; east-central counties were also largely deficient in rainfall. The temperature was nearly 2° a day above the normal and added much to the drought conditions. The greatest heat came during the week from the 9th to 17th, a second warm period coming in from the 23d to 28th. Cool periods occurred from 1st to 3d, 19th, to 21st, and 29th to 31st.

Indiana.—The temperature was excessive in all parts of the State. The average was 75.7°, or 3.7° above the normal. The average total precipitation, 2.20, was 0.72 less than the usual amount. A deficiency was noted in all portions of the State. The continued dry weather was very discouraging, and not beneficial to growing crops and plowing. The prospect for a very great yield of corn has been lessened. Pastures and meadows became very dry and brown, and as creeks were low and springs and wells also dry, stock water was scarce, and the ground too dry for plowing. The rains toward the end of the month, however, did some good, and improved crops in localities.

Indian Territory.—(See *Oklahoma.*)

Iowa.—The month was unusually favorable. The mean temperature was 71.9°, or about 1° above the normal. The average rainfall was 4.43, as shown from reports from 88 stations, or 0.83 above normal. The heaviest rainfall reported for the month was 10.63 at Panama, Shelby County. The crops were greatly benefited by this excess of moisture.

Kansas.—The mean temperature was 76°, or 0.4° below the normal. The highest temperature, 107°, was reported at Achilles on the 26th, and the lowest, 42°, at Hays, on the 1st. The total average precipitation was 5.20, or 2.18 above the normal. Lightning killed nine head of cattle and one mule at Achilles on the night of the 1st–2d, a steer at Blaine on the 4th, a team of horses at Manhattan, and a cow in Pottawatomie County on the 9th, also Mr. Andrew Michaelson who lived about 4 miles southeast of Blaine. On the 14th lightning struck Mr. J. Maitland while standing at a window in his residence in Topeka, rendering him unconscious for a time. On the same day it damaged the Methodist Episcopal church at Blaine. On the night of 19–20th, 5.91 inches of rain fell at Manhattan.

Kentucky.—The mean temperature, 76.6°, was slightly in excess of the normal. A brief heated term occurred on the 16th, 17th, and 18th. In the counties contiguous to the Ohio River and those in the southern section, the temperature was slightly in excess of that in the mountain districts and the eastern and southeastern portions. The average precipitation was about an inch less than the normal amount, though a few districts show a considerable excess. The rainfall was distributed with moderate uniformity throughout the month and until near its close was generally sufficient for the needs of vegetation.

Louisiana.—The monthly rainfall ranged from less than 1.00 in portions of the northwestern parishes, to more than 6.00 in the northeastern parishes. The average for the State was three-tenths of an inch less than the usual amount. The temperature averaged 1.5°, daily, higher than usual. The highest temperature, 101°, was reported from Liberty Hill on the 18th, and the lowest, 63°, from Davis on the 27th.

Maine.—(See *New England.*)

Maryland.—The mean temperature was 1.4° above the normal. The highest daily temperature, 102°, was recorded at Westminster on the 11th, and the lowest, 31°, at Deer Park on the 22d. The average amount of rainfall was 2.03, or 1.84 above the normal. The greatest amount, 4.76, was reported from Seaford, Del., and the least, 0.49, at Popes Creek. Thunderstorms were frequent over nearly the entire district. Hail was reported at Dover on the 16th, Laurel on the 7th, and Oldtown on the 4th. Frost occurred at Sunnyside on the 20th.

Massachusetts.—(See *New England.*)

Michigan.—The mean temperature for the State was just normal, that for the northern half being slightly below and that for the southern half slightly above the normal. The first eight days were quite cool, but on the 9th the temperature rose, exceeding the normal considerably on the 10th and 11th. Most stations recorded their maximum temperature on the 10th. On the 20th and 21st frosts were quite general on low ground in the northern half of the State, but damage was quite light. From the 23d to the 28th, inclusive, the temperature averaged from 5° to 6° above the normal. The rainfall during the month is notable for the fact that it ended one of the most severe and prolonged spring and summer droughts ever known in this State. There was a deficiency in the Upper Peninsula and northern countries and an excess in the central and southern counties. The greatest amount, 5.09, was recorded at Lansing, and the least, 1.34, at Sault. Ste. Marie. The average for the whole State was 0.07 above normal.

Minnesota.—August averaged but one-tenth of a degree warmer than normal. Temperatures higher than usual prevailed from the 2d to the 17th, with hottest days on the 2d, 9th, 13th, and 16th. A cold spell set in on the 18th and continued to the 20th, succeeded by another warm spell from the 22d to the 28th. The 31st was cold; on this date nearly all stations reported their lowest temperatures. During both cold spells light frosts were frequent in low places, but they did no harm of consequence. The rainfall was 0.37 less than usual. The only days on which rain fell generally were the 8th, 9th, 13th, 16th, and 22d to the 26th. The rains of the 8th and 9th were excessive over limited areas and were accompanied by high winds and hail.

Mississippi.—The average precipitation, 4.63, was 0.67 above the normal. The largest amount, 12.60, was reported from Moss Point, and the least, 0.53, at Batesville. Rainfall was lightest in the northwest counties and heaviest over the extreme southern and southwestern portions. The highest temperature, 105°, was reported from Columbus on the 6th, and the lowest, 56°, from Corinth on the 11th. The mean temperature, 80.3°, was but 0.3° above the normal. Thunderstorms occurred on numerous dates in portions of the State. Lightning is reported to have killed a small boy and a horse at Sulphur Springs, 4 miles north of Louisville.

Missouri.—In the central and northern sections the mean temperature was nearly normal; in the northeast section, 1.5° above; in the southeast section, about 1.0° above; and in the southwest section, about 1.0° below; the mean for the State was but 0.4° above the normal. The highest temperature, 104°, occurred at Unionville on the 12th, and the lowest, 48°, at Elmira on the 21st. The rainfall was heaviest in the northwest section, where, at a number of stations, it exceeded 8.00; throughout that section, the greater portion of the northeast section, and a considerable portion of the southwest section, it was decidedly in excess of the normal. The average for the State, 4.36, was 1.21 in excess. In the southeast section only there was a deficiency, viz, 0.50. As a rule the month was unusually favorable for corn and for the growth and maturing of fall crops; the rains of the last decade put fall pastures in good condition.

Montana.—The temperature was 2.2° below the normal. The highest daily temperature, 107°, was reported at Glendive on the 12th, and the lowest, 19°, at Grantsville on the 18th, 19th, and 20th. The average rainfall, 0.54°, was 0.89 less than the usual amount. It was very smoky during the early part of the month, especially in the western portion, owing to extensive forest fires. Frost occurred several times during the month. Snow was reported on the mountains and foot hills.

Nebraska.—The month was slightly warmer than normal, with moderate extremes of temperature, and with rainfall somewhat above the average. The highest temperature, 106°, occurred at Grand Island on the 8th, and the lowest, 39°, at Springview on the 31st. The average rainfall, 3.04, was but 0.40 above the normal. The heaviest rainfall occurred in the southeastern section, where the average for the month was 5.94. Hail occurred on the 4th, 8th, 10th, 18th, 22d, 23d, and 27th.

Nevada.—The mean temperature was 70.6°, or 1.1° below the normal. The highest daily temperature, 112°, was reported from St. Thomas on the 4th, and the lowest, 24°, was recorded at Elko on the 9th and Carlin on the 28th. Frosts were recorded on the 1st, 8th, 26th, 27th, 28th, 29th, 30th, and 31st. Ice of considerable thickness formed at Ruby Valley on the 8th, 29th, and 30th; at Reese River on the 27th; at Wells on the 8th and 29th, and at Sunnyside on the 27th, 28th, and 29th.

New England.—The mean temperature was normal at Eastport, slightly below at Portland, Concord, Hanover, and Strafford, and above in other sections. The observer at Strafford, Vt., reports this the coldest August but two in 20 years. The maximum and minimum temperatures were lower than usual at most stations, and there was a general frost in all low lands on the morning of the 22d. The only damage reported was to corn, etc., at Strafford, Vt., to all crops not protected by fog at East Templeton, Mass., to garden truck at North Billerica, Mass., where several acres were killed, and to cranberries in some bogs on Cape Cod. There was a slight excess in rainfall in most northern sections, and at places in the south where heavy local rains occurred on the 7th or 18th, but generally in all central and southern districts there was a deficiency. The rain was so well distributed, however, that growing crops were well supplied and suffered very little, but springs and wells are reported low. Hail was reported at Adams on the 17th, and Norwich on the 21st. Frosts were reported on the 20th, 21st, and 22d. Earthquake felt at Sanbornton at 4.15 a. m., on the 10th.

New Hampshire.—(See *New England.*)

New Jersey.—The warmest days of the month were the 9th, 10th, 11th, 19th, 24th, and 29th, when the maximum temperature ranged from 88° to 102°. The minimum temperature ranged from 34° to 57°, and occurred on the 1st, 19th, 20th, and 22d. The mean temperature was 74.2°, 2.2° above the normal. Precipitation was quite general throughout the northern portions on the 4th, 7th, 11th, 12th, 18th, and 27th, and in the southern portions on the 4th, 7th, 27th, 29th, and 31st. Widely scattered showers occurred in the latter sections on the 11th, 16th, 17th, and 20th. The average total precipitation, 2.53, was 2.21 less than the usual amount. Hail occurred at Perth Amboy on the 4th, and at Millville on the 16th. Frost was reported at three stations on the 22d.

New Mexico.—The month averaged a little below the normal in temperature, and the heat was more evenly distributed than usual. The warmest days were 1st to 14th, 16th to 18th, 21st, and 22d, and the coolest, 27th to 31st. The rainfall averaged above the normal, and as usual was quite unevenly distributed. The greatest total was 5.32, at Las Vegas, and the least, 0.12, at Raton. Light thunderstorms were frequent, and a few heavy ones were also reported. The observer at San Marcial reports one with excessive rainfall, doing a great deal of damage. Several light hailstorms were reported, but caused no severe damage.

New York.—The average temperature for the State was but 0.5° above the normal; it was generally below at northern stations, and above in the southern section, amounting to about 2° near the coast. The maximum temperature was 94° at Oneonta, on the 11th, and the minimum, 30°, at Saranac Lake on the 21st. The average precipitation at 25 stations was 0.50 above the normal amount. The heaviest general rainfall, ranging from 4.00 to 6.00 or more, occurred on the plateaus and near the coast, but the least, in the Hudson and St. Lawrence valleys and near the Lakes. The maximum amount was 8.27, at Wedge-

wood, and the minimum amount, 1.65, at Le Roy. Thunderstorms were frequent. Hail fell on the 4th, 6th, 17th, 18th, and 28th. The month was notable for severe electric storms, the most violent occurring on the 4th, 11th, 17th, 18th, and 28th. Those of the 17th and 28th were probably the severest New York has known for years. Frosts were generally reported on the 22d, and were light in most cases, but in some of the higher valleys of the plateaus were severe enough to kill buckwheat and late corn. A trace of snow was reported from Cloversville on the 21st. Toward the close of the month much injury from drought was sustained in the lower Hudson Valley and in some other portions of the southern tier.

North Carolina.—The month was nearly normal in its chief features, the temperature was only half a degree above, and the precipitation but half an inch below the average. It was quite favorable for the growth of crops and for farm work, and was free from violent local storms, though moderate thunderstorms were numerous, occurring on all dates, except the 1st, 2d, 3d, 18th. 19th, and 23d. The highest temperatures reached 98°; the lowest was 38°, on the 2d, at Linville, which is 2° lower than the previous lowest record (40° reported from Highlands on August 12, 1890). The precipitation was above the normal only in the western district, where the largest total amounts occurred in a few southern counties. The greatest total was 12.54 at Horse Cove. The rainfall was poorly distributed, especially in the central portion of the State, where droughty conditions continued to prevail until relieved by the general rains of the 15th and 16th. Hail was reported on the 9th and 27th, but no report of serious damage was received.

North Dakota.—The mean temperature, 64.5°, was the lowest by 2.2° of any previous record since the establishment of this State weather service. The extremes of temperature also averaged the lowest of any previous year, the highest reported being 104° and the lowest 24°. Killing frosts were general throughout a greater portion of the State. The greatest damage resulting therefrom was to tender vegetation, vines, and late corn, but, as a rule, the principal crops were either out of the way or so far matured as to place them beyond injury by frost. The rainfall has been slightly greater than that for previous years, with the exception of 1892, and was fairly well distributed. The greatest amount fell over the northeast portion; in Roulette, Cavalier, Pembina, Ramsey, and Nelson counties the average was about 2.24; in Mountraille County it was over 3.00, and also in Eddy County, in the north central portion of the State. In Richland County, in the extreme southeastern portion, over 2.00 occurred. A gale occurred at Portal on the 22d, accompanied by hail and rain, the former causing some damage to growing crops in that vicinity.

Ohio.—The month averaged above the normal as to temperature, and slightly below as to rainfall, but in the northern section precipitation was somewhat in excess. Drought continued in many sections, but was effectually broken by copious and timely rains on the 29th and 30th. The maximum temperature, 103°, occurred at Camp Dennison on the 9th and 17th, and at Clifton and Thurman on the 9th. The minimum was 31°, and occurred at Waterford on the 22d. The average total rainfall, 2.96, was 0.10 less than usual. There was a deficiency in all sections except the northern, where there was an excess of 0.85. The greatest amount of rain, 6.53, was recorded at Demos, and the least, 0.70, at Cedarville. Hail fell on 3d, 6th, 17th, 24th, and 28th; and very light frosts occurred in low lying districts on the 1st, 22d, and 31st at scattered points.

Oklahoma.—The average temperature, 79.2°, was only 0.2° below the normal. The highest temperature was 106°, at Anadarko on the 14th, and the lowest, 56°, at Pond Creek on the 7th. The greatest total rainfall was 8.30 at Keokuk Falls, and the least, 2.10, at Fort Sill. The average total precipitation, 5.06, was 1.90 in excess of the usual amount.

Pennsylvania.—The highest recorded temperatures occurred ont he 11th, and were as follows: (Aqueduct) Logania, 101; Lebanon and York, 100°; Gettysburg and Carlise, 99°. The average temperature was 72.3°, or 2.9° above the normal. The rainfall was badly distributed, and injurious drought prevailed in many localities during most of the month. The average precipitation was 3.23, or 1.23 less than the usual amount. The largest total rainfall, 6.03, was recorded at Sægerstown, and the smallest, 0.59, at Philadelphia. Hail was reported on the 4th, 6th, 8th, 11th, 16th, and 18th, and frost on the 18th, 20th, 22d, and 26th.

Rhode Island.—(See *New England.*)

South Carolina.—The month, as is usual, was of comparatively even temperature. There were two cool periods of short duration, one at the beginning and the other about the middle of the month. The average temperature was about 1° per day above the normal. Only one station reported a temperature of 100°. The rainfall averaged 130 per cent of the usual August amount, and was well distributed. An excess in rainfall in the Savannah Valley, however, caused some damage to crops in the low lands. The droughty condition that existed during the previous month in the northern and western counties, was relieved early in the month.

South Dakota.—The temperature reached or exceeded 100° at one or more stations on the 1st, 2d, 8th, 11th, 13th, 14th, 15th, 16th, 21st, 22d, 25th, and 26th. Lowest temperatures occurred quite generally over the northeast portion of the State, on the 31st, when light frosts were reported in many localities, and killing frosts, also, in many places, injuring vines and some late corn. General rains occurred on the 4th, 5th, 7th, 8th, 10th, 13th, 21st, and 27th, the heaviest on the 6th, 7th, 8th, and 26th.

Tennessee.—The month showed a slight excess of temperature as compared with the record of the past thirteen years, and a considerable deficiency in the normal amount of rainfall. These conditions, together with the normal percentage of sunshine, had a tendency to lessen the prospective yield of some growing and maturing crops, but were beneficial to others. The highest temperature, 98°, was recorded at Covington on the 27th and 28th, and the lowest, 46°, at Bristol on the 1st. Generally, the warmest weather was noted on the 18th, and the coolest on the 1st and 2d. The average rainfall was 2.80, nearly 1.00 less than normal. The rains were generally light and scattering. The days of greatest rainfall were the 6th, 10th, 16th, 17th, 20th, 21st, and 31st.

Texas.—Two distinct periods of warm weather were observed. The first prevailed from the 1st to the 3d, inclusive, and the highest temperatures were recorded over the western portions of the State on these dates; the second period prevailed from the 11th to the 14th, when the maximum temperatures at nearly all stations in the eastern and central portions were recorded. Two cool periods were experienced; the first from the 3d to the 8th, and the second from the 25th to the close of the month; on these dates the minimum temperature generally was recorded, except over the western part of the Panhandle, where it occurred on the 15th. The precipitation, on an average, was 0.85 below the normal. The deficiency ranged from 0.34 to 0.40 over central Texas, from 0.41 to 2.36 over north Texas, east portion of southwest Texas, and east Texas, and from 0.25 to 0.39 over the coast district; the greatest deficit was in the vicinity of Corpus Christi and Tyler. It ranged from normal to 3.85 above over the Panhandle and western Texas, with the greatest excess in the vicinity of Fort Stockton. The rainfall was not very well distributed and there was an almost total absence of rain during the first decade.

Utah.—The warmest days were the 6th and 17th, and the coolest, the 29th, 30th, and 31st. The highest temperature was 110°, at Manti, on the 6th, and the lowest, 29°, at Soldier Summit, on the 25th. The average precipitation was 0.35. Greatest amount, 1.42, was recorded at Koosharem, and the least, a trace, at Deseret and Heber. Hail was reported on the 8th, 12th, 18th, and 30th, and frost on the 6th, 9th, 10th, 17th, 24th, 25th, 29th, and 30th. The principal features of the weather were the warm dry days, and cold, chilly nights, large number of clear days, and great deficiency of precipitation. The afternoons were more or less windy, which had the effect of intensifying the prevailing drought.

Vermont.—(See *New England.*)

Virginia.—The month was unusually hot, and each heated spell of longer duration than ordinary. Almost every day the temperature was higher than the average, and it will be remembered as the hottest August for many years past. The total precipitation was considerably below the normal. It was heaviest in the mountain counties and in tidewater Virginia, and generally lightest over the grasslands.

Washington.—The month was excessively dry in all sections. No rain occurred, practically, until the 19th, in the northwestern portion, and ended in the eastern part of the State on the 21st. Prior to this the drought had been of six weeks continuance. The average rainfall was less than for any previous August, except west of the mountains, where the rain was a little in excess of that for the same month last year. The month was the coolest of which there is any record, notwithstanding the fact that there was so little rain and cloudiness. This is probably accounted for by the fact that on many days that were otherwise clear, the sun was almost entirely obscured by excessive smoke from forest fires, which extended over a great part of the eastern, as well as the entire western section of the State.

West Virginia.—The opening days were very cool, and the 2d was one of the coldest on record for that time of the month. Light frosts were reported from the mountain districts, but were too light to injure vegetation. From the 4th to 19th the temperature was above the normal; this period was one of intense heat and sultriness. The rainfall was more than one inch below the normal. As during the preceding months, the rainfall in the southern sections was much greater than in the northern. In the Greenbrier and Kanawha valleys it was apparently about normal, but in other sections the deficiency was very great. Some reports state that not one good rain fell during the entire month.

Wisconsin.—The month was characterized by high midday and low night temperatures, with daily means above the average. Light frosts occurred on the 12th, 21st, 28th, 30th, and 31st, and killing frosts on the 21st. The rainfall was fairly distributed throughout the month over all counties, except in the central southern portion of the State, where droughty conditions prevailed until the last week, when general and heavy rains helped all growing crops and started the grass. The average total rain, 2.80, was 0.43 above the usual amount.

Wyoming.—The mean temperature was 66°, being slightly below the normal. The highest temperature, 99°, was recorded at Fort Laramie, on the 13th, and the lowest, 20°, at Wise, on the 10th. Frosts occurred in several portions of the State on the 10th, 11th, 14th, 15th, and 21st. The average amount of precipitation was 0.91, being slightly above the normal. The greatest amount, 1.74, was recorded at Wise, and the least, a trace, at Wheatland.

STUDIES BY FORECAST OFFICIALS.

HIGH AREAS NORTH OF THE ST. LAWRENCE VALLEY IN OCTOBER, NOVEMBER, AND DECEMBER.

By Prof. E. B. GARRIOTT (dated November, 1895).

The areas of high barometric pressure that appear north of the St. Lawrence River in October, November, and December usually advance to that region from Minnesota or the Dakotas in twenty-four hours. A large proportion of the high areas of this class pass from western Quebec to the Canadian Maritime Provinces in twenty-four hours; a less frequent path, and one that is followed in exceptional cases only in November and December, is from western Quebec southeastward off the middle Atlantic coast. The Saint Lawrence high areas generally show pressure 30.20 to 30.30; as the fall advances, however, higher pressures appear, and values above 30.50 obtain about once a month in November and December.

With the appearance north of the St. Lawrence of a high area in October an area of low pressure usually occupies the Canadian Maritime Provinces, and another the extreme northwest. If a low area is not shown in the Northwest one will appear within twelve hours. Twenty-four hours before the high area reaches the region north of the St. Lawrence River, and when it occupies a position in the Northwest, a temperature fall of 10° or more occurs in the upper Lake Region and the Ohio Valley, and rain falls from the eastern Lake Region over the Atlantic Coast States north of Virginia. Twelve hours before the high area reaches western Quebec, and when it is central over the upper Lake Region, a temperature fall of 10° or more occurs from the lower Lakes over the interiors of New York, Pennsylvania, and New England, and the western limit of the rain area reaches the Middle Atlantic and New England States. Twenty-four hours after the high area appears north of the St. Lawrence the rain area has passed to sea and the temperature has begun to rise over the interior of the Middle Atlantic and New England States. Within thirty-six hours after the appearance of the high area north of the St. Lawrence fine weather with rising temperature obtains over the Middle Atlantic and New England States, and a fall in temperature is noted only over the Canadian Maritime Provinces. When October high areas pass southeastward from the St. Lawrence Valley a marked fall in temperature occurs over the South Atlantic States. When the high area passes eastward over northern New England and the St. Lawrence Valley easterly winds will be attended by cloudy weather and sometimes by rain along the immediate middle Atlantic and south New England coasts.

In November the relative positions and movements of the high areas and their attending low areas are practically the same as noted for the preceding month, and no material difference is shown in the temperature and rain conditions which attend them. In December, however, the greater magnitude of the high areas occasions marked differences in conditions and effects when compared with those noted for the fall months. Twenty-four hours before a December high area appears north of the St. Lawrence, and when it occupies Minnesota or the Dakotas, a low area appears on the north Pacific Coast, rain or snow falls over the lower Lakes, and in 60 per cent of the instances noted a marked fall in temperature occurs over the Middle Atlantic and New England States. Twenty-four hours after the high area appears north of the St. Lawrence (and when it has advanced to Nova Scotia, and the north Pacific Coast low area has advanced to the northwestern Lake Region) rain or snow falls along the middle Atlantic and New England coasts and the temperature continues low over the Atlantic Coast States from Virginia to Maine. Within thirty-six hours after a high area appears north of the St. Lawrence in December fine weather with rising temperature prevails over the middle Atlantic and New England States.

In conclusion, it may be stated that the high areas of the type above referred to average about two per month, or about one-fourth of the high areas traced for the months of October, November, and December. Their appearance north of the St. Lawrence is preceded by rain or snow and falling temperature over the Middle Atlantic and New England States, and is followed within thirty-six hours by fair weather and rising temperature over those districts.

WEATHER FORECASTS IN THE STATE OF MISSOURI.

By H. C. FRANKENFIELD, Local Forecast Official (dated December 4, 1895).

[Extract from complete paper now in press.]

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In compiling the data upon which to base any deductions regarding the successful forecasting of Missouri weather, only the observations and maps for a limited number of years have been used, namely, from July, 1889, to June, 1894, inclusive. It would, of course, have been preferable to have used more, but lack of time prevented, and, in any event, it was thought that the different storm types are so distinct, both as to locality and season, that fairly accurate results could be obtained with but five years' data.

PRECIPITATION.

In all 549 more or less well-defined lows were studied, and of these all but three, or one-half of 1 per cent, originated somewhere to the westward of the State of Missouri. Of these three, two backed in from the south Atlantic Coast sufficiently to cause precipitation, local in one case and general in the other, and comparatively light in both. The other originated within the State. It was only of moderate energy, not very well defined, and caused general thunderstorms with a substantial amount of rain.

By far the greater portion of the lows which moved over the country first appeared in the British Northwest Territory in the Province of Alberta. Twenty-six per cent were of this type, but only 32 per cent of these caused precipitation in the State of Missouri. A considerable number, 9 per cent, moved eastward from the north Pacific Coast, and of these 49 per cent caused precipitation in Missouri. An almost equal number originated in the middle Plateau, but 80 per cent of these caused precipitation. Seven per cent originated in the southern Slope, and 87 per cent of these caused precipitation. Seven per cent also originated in the extreme northwest, east of the Rocky Mountains, but only 49 per cent of these caused precipitation in our State. Six per cent originated in the southern Plateau and 91 per cent of these caused precipitation. Only 2 per cent originated in Mexico or the west Gulf States, but 92 per cent of these caused precipitation. Rain or snow also followed fifty-six cases of irregular and unsettled conditions, indicated on the weather maps by the curving away from each other of the isobars and isotherms, leaving an open space between. These usually caused rain within a reasonable time, and 10 per cent of them developed into well-defined lows, one in April, 1893, becoming a storm of exceptional severity by the time it reached the middle Slope. These irregular arrangements of the isobars and isotherms, when they occur in the Southwest and West, indicate the presence of conditions which will almost invariably cause precipitation in Missouri in from twenty-four to thirty-six hours; the interval depends upon the distance of the irregular conditions from the State when first noticed.

No precipitation at all occurred from the lows originating in Manitoba and the Missouri Valley.

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It appears that at times precipitation will be caused in Missouri, usually within twenty-four hours, by high areas, mostly of decided character, in the Slope or Plateau regions. The pressure is generally above the normal over the remainder of the country, although there are sometimes lows of slight intensity moving across the Gulf of Mexico, or else over the extreme north, particularly in the winter. In nearly all the cases the amounts of precipitation were light, and, except in summer, were evidently caused by condensation by the low temperatures accompanying the highs. In the summer the conditions were generally unsettled and somewhat confused, causing local showers, principally thunderstorms.

It is worthy of note that the highs rarely moved across the Mississippi River, except with greatly decreased energy. Many were dissipated west of the river, normal equilibrium evidently having been restored by the precipitation.

The following conditions usually precede precipitation from high areas:

(*a*) High of decided character in the northern or middle Slope or middle Plateau, and elsewhere pressure normal or above.

(*b*) Cold wave covering the central valleys and West except in summer.

(*c*) Isothermal gradients usually quite steep, about 10° per 100 miles (except in summer), either in southeast Nebraska and southwest Iowa, or in Missouri, or in western Kentucky and western Tennessee, and less than one-half as steep to the northwestward, with the isotherms extending in a northeasterly direction.

(*d*) Frequently in winter a low of slight intensity over the Gulf of Mexico, and sometimes over the extreme north, although these latter lows do not appear to have any effect on the result.

(*e*) Northeasterly winds, shifting later to easterly and southeasterly. One peculiar form of high pressure area, with conditions somewhat different from the above, caused precipitation in Missouri in about 83 per cent of the cases investigated. The pressure was generally high over the whole country east of the Rocky Mountains, but the belt of highest pressure extended in oval form over the States immediately north of Missouri, sometimes reaching farther west to Nebraska and as far east as West Virginia, but with the highest belt extending from eastern Nebraska to western Illinois. The weather was cloudy, with northerly winds, and the temperatures ranged from 30° to 40° within the State of Missouri, although much lower in one case. The isotherms extended across the State in a horizonal direction parallel to the long axes of the oval isobars above mentioned. Precipitation from high areas always followed in twenty-four hours and was usually light in amount.

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TEMPERATURE.

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The following general conclusions were deduced from a study of the origin and progress of cold waves:

I.—The severity of the cold wave depends largely upon the lowest reading of the barometer, the proximity of the center of the low to the State, its position with reference to the State, and the intensity of the succeeding high.

II.—Owing to the latitude of Missouri and the rapid easterly movement of the lows from November to April inclusive, nearly all the cold waves are of comparatively short duration.

III.—"The most marked cold waves occur with a low in Missouri and a high in Montana or North Dakota." (Hammon.)

IV.—When a low passes to the southeast west of Missouri there will be no marked fall in temperature, as the winds will blow from some northerly direction in advance of the low, and there will not be much rise in temperature. In cases of this sort it is perhaps better to forecast colder in twenty-four hours, followed by warmer within twelve hours after that, as the high following the low will cause warmer southerly winds without regard to the intensity of the former, and the extent of the cold wave in the West and Northwest.

V.—"A low in Missouri and a high in Minnesota affect eastern Missouri, but not materially western Missouri." (Hammon.)

VI.—A Mexican low passing through Missouri produces a severe cold wave lasting at least from thirty-six to forty-eight hours.

VII.—A low in Colorado moving rapidly eastward, e. g., to the upper Lakes in twenty-four hours, causes a decided cold wave of short duration in about thirty-six hours. A considerable rise in temperature may be expected within thirty-six hours after, unless the high is reinforced by another coming down from the extreme north, in which case the low temperature will persist for a day or two longer.

VIII.—When a low moves across the extreme north the fall in temperature in Missouri will not be very great, but if the temperature is already comparatively high, the fall is likely to be sufficient to justify a cold wave warning. These cold waves are in all cases of very short duration.

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NOTES BY THE EDITOR.

THE VALUE OF WEATHER BUREAU FORECASTS.

With respect to the value of the Weather Bureau forecasts Dr. Isaac M. Cline writes in the Monthly Bulletin of the Texas Weather Service for August, as follows:

A West Indian hurricane touched the Texas coast country on August 29, when gales were reported from Port Lavaca westward to Brownsville, extending into the interior as far north as Rio Grande City, where much damage was done by the wind. Boats in port were damaged to some extent at Brownsville and Corpus Christi, and several houses were blown down at Rio Grande City and Brownsville. Forecasts showing the location of this storm were received from the chief office at Washington for three or four days before the storm reached the coast. These forecasts were given wide distribution and everybody kept well informed in regard to the progress of the storm. It is reported from Brownsville that had not these warnings been given much damage would have been done, which was avoided by the timely preparations. This was the case generally all along the coast, as the warnings caused many vessels to remain in port until all danger was over. High tides were reported from all along the coast and the sea swells at Galveston, Tex., at 8 a. m. on the 29th were the highest which have occurred since July 5, 1891. There was no material damage done at this place, except there was slight erosion on the beach and some jetty piling washed off. The exact damage done by this storm along the west gulf is not definitely known.

THE GREAT DROUGHT OF 1845 IN NORTHERN OHIO.

This drought is described by Mr. Seabury Ford in a letter to S. P. Hildreth, as published in the American Journal of Science, March, 1846, (2), Vol. I, p. 207, as follows:

The district of country which suffered the most was about 100 miles in length, and 50 or 60 in width, extending nearly east and west parallel with Lake Erie, and in some places directly bordering on the shore of this great inland sea. There was no rain from the last of March or the first of April until the 10th of June, when there fell a little rain for one day, but no more until the 2d of July, when there probably fell half an inch, as it made the roads a little muddy. From

this time no more rain fell until early in September. This long-continued drought reduced the streams of water to mere rills, and many springs and wells heretofore unfailing became dry, or nearly so. The grass crop entirely failed, and through several counties the pasture grounds in places were so dry that in walking across them the dust would rise under the feet, as in the highways. So dry was the grass in meadows that fires, when accidentally kindled, would run over them as over a stubble field, and great caution was required to prevent damage from them. The crop of oats and corn was nearly destroyed. Many fields of wheat so perished that no attempt was made to harvest them. Scions set in the nursery dried up for lack of sap in the stocks, and many of the forest trees withered, and all shed their leaves much earlier than usual. The health of the inhabitants was not materially affected, although much sickness was anticipated. Grasshoppers were multiplied exceedingly in many places, and destroyed every green thing that the drought had spared, even to the thistles and elder tops by the roadside.

The late frosts and cold drying winds of the spring months cut off nearly all the fruit, and what few apples remained were defective at the core and decayed soon after being gathered in the fall. Many of the farmers sowed fields of turnips in August and September, hoping to raise winter food for their cattle, but the seed generally failed to vegetate for lack of moisture. So great was the scarcity of food for the domestic animals that early in autumn large droves of cattle were sent into the valleys of the Sciota, where the crops were more abundant, to pass the winter, while others were sent eastward into the borders of Pennsylvania. This region of country abounds in grasses, and one of the staple commodities is the produce of the dairy. Many stocks of dairy cows were broken up and dispersed, selling for only four or five dollars a head, as the cost of wintering would be more than their worth in the spring. Such great losses and suffering from the effects of drought have not been experienced in that portion of Ohio for many years, if at all since the settlement of the country. As the lands become more completely cleared of the forest trees dry summers will doubtless be more frequent. In a region so near a large body of water we should expect more rain than in one at a distance. The sky in that district is, nevertheless, much oftener covered with clouds than in the southern portion of the State, where rains are more abundant; but the dividing ridge or height of land between Lake Erie and the waters of the Ohio lacks a range of high hills to attract moisture from the clouds and cause it to descend in showers of rain.

[NOTE.—The above prediction that the frequency of dry summers will doubtless increase "as the lands become more completely cleared" has not as yet been verified, although the forests have been greatly reduced and the rainfall records greatly multiplied. Undoubtedly the dryness of the surface soil has been increased by sunshine and winds and plowing and draining, but the cloudiness and rainfall and snow, which are the true meteorological phenomena, do not seem to have been appreciably affected by the increase of the population and the cultivation of the land. Our knowledge of atmospheric motions attending rain leads us to conclude that extensive areas of cloudless sky and no rain must be due to the presence of slowly-descending air; the dryness and heat observed in the lower atmosphere are the outcome of three influences, viz: the compression of descending air, the nocturnal radiation and the daily insolation. The evaporation from soils and plants, oceans and lakes, is in general carried far away before it falls as rain. If it be true, as above stated, that in a region so near Lake Erie as is the State of Ohio "we should expect more rain," still it is equally true that the rainfall of Ohio is *not* appreciably increased by the presence of Lake Erie except along the immediate coast, and we must look to some other influence as the origin and cause of its rainfall. Evaporation adds moisture to the air, but what brings it down? Experience shows that rain occurs in three classes of localities: (1) Where the winds push up over highlands; (2) where cool air underruns and lifts up warmer air; (3) where overheated surface air rises to let the surrounding heavier air take its place. All three of these are summed up in the one expression "rain falls from masses of air that have been raised high enough to cool, by expansion, decidedly below the dew-point." How far this cooling must go or what other factors come into play is still a subject for further discussion, but it seems certain that the primary essential is the ascension of a large mass of moist air, and when this feature is absent there will be no considerable rain.]

A REGION OF HEAVY RAINFALL.

The following is taken from the monthly meteorological report of the North Carolina State Weather Service for August, 1895, p. 135.

Mr. B. C. Hawkins, voluntary observer at Horse Cove, Macon County, in western North Carolina (near the boundary between North Carolina and Georgia, N. 35°, W. 83° 10′), writes:

Owing to the system of mountain and valley winds on the southeast slope of the mountains the tendency at this station is for northeast winds at night and southeast winds in the daytime. Very often the winds are northeast at sunrise, but by 9 a. m. are fresh from the southeast. Sometimes the night winds are from the northwest or north, the day winds from the south or southwest, but the northeast night and southeast day winds are the most marked. These winds are broken up by the passage of highs and lows of marked intensity. I believe this system extends over many adjacent counties, and that these winds are one cause of the local heavy precipitation which occurs in northern Georgia, northwestern South Carolina, and the western portion of North Carolina. Would not such winds have a tendency to force large volumes of moist air up the Blue Ridge? When a cyclone appears in the west the natural direction of the wind here would be southeast, but the diurnal winds would increase the amount of air in motion. * * * Heat action on the slopes of the mountains would probably rarely be sufficient to cause rain independently, but would increase the amount in most cases when cyclonic action comes into play. Professor Harrington in "The Rainfall of the United States," attributes the excessive rainfall of the southern Blue Ridge entirely to the contact of storms, especially Gulf storms. * * * I believe, however, that these mountain and valley winds increase the rainfall greatly. They may have something to do with the severe cloud bursts which are common here, and of which an unusually large number occurred in June, 1876.

THE CALCULATION OF NORMAL VALUES.

It is important to decide whether a normal value of any meteorological datum is always best obtained by simply taking the mean of all observed values. Our idea of a normal implies, first, that it is the average of a great number, and, secondly, that it contains within itself nothing abnormal—that is to say, that abnormal events have so counteracted each other as not to injuriously affect the average of many values. If, for instance, we have a number of total monthly rainfalls for August ranging between zero and two inches, and if we know that, as far as experience goes, there is no reason to think any of these to be very abnormal, then the average of all will properly be used as the approximate normal for that month and place; but if among these there occurs one month with a cloud-burst (as when 24 inches of rain fell at Palmetto, Nev., in August, 1890), then this abnormal value will so affect the average of all that the latter will not be a proper normal. Such an abnormal value should be included with the others in the general average only when the series is so long—say 100 or 500 values—that the error introduced by counting it in shall become insignificant because divided by the large number. That is to say, if a cloud-burst may be expected but once in a hundred years at the station, then the average of a century of records including one cloud-burst would be a proper normal, but the average of ten years, including the cloud-burst, would not be a proper normal. In the latter case we must reject the cloud-burst and take the average of nine years as an approximate normal and wait for the century of records to accumulate.

There is a general proposition in the mathematical laws of chance, according to which the most probable mean value is determined only after rejecting observations whose abnormality is such that the probable error of the resulting mean is increased by using them. The rule according to which we may judge whether an observation should be rejected for such abnormality is fully explained in Chauvenet's treatise on "The Method of Least Squares," published as an appendix in the second volume of his "Spherical Astronomy." The application of the laws of chance or probability to meteorologi-

cal problems is well set forth in Meyer's "Anleitung," but the criterion for the rejection of abnormal observations is not mentioned by him. There are perhaps but few opportunities for its application in meteorology, but its propriety seems very evident in case of such excessive rains as at Cherrapoonjee, India, and in our American "cloud-bursts." The further study of this subject is of interest.

PROTECTION FROM FROST.

In a recent number of the WEATHER REVIEW (November, 1894, page 463) some suggestions are given as to methods of protecting tender vegetation from injury by severe frost. In that article the sprinkling of the plant and the ground with water is especially mentioned as a preventive. On this subject Prof. R. C. Kedzie, of the Michigan State Agricultural College, at Lansing (as quoted in the August Bulletin of the Michigan State Weather Service), says:

The great regulator of temperature is water. Water in becoming warmed takes up a large amount of heat and gives out the same amount of heat in cooling. Evaporation is a powerful cooling process and condensation of water vapor is an equally powerful heating process. The vapor of water in the atmosphere may control excessive changes of temperature in two ways:

1. By condensing into water it liberates enough heat to raise through one degree the temperature of a thousand times the amount of water condensed, and, hence, powerfully arrests the fall of temperature by giving out heat. In this way the beneficent dew becomes a warming-pan for our chilling fields.

2. The vapor of water in the air (and the clouds also) prevents the escape of heat by radiation from the soil and consequent cooling of the ground during the night. But for the vapor of water in the air we should have a frost every night in the year. The removal for a single summer night of the aqueous vapor which covers England, would be attended by the destruction of every plant which a freezing temperature could kill.—Tyndal on Heat, p. 405.

If the farmer is forewarned of the approach of a still frost he may do something to avert the calamity. The conservative influence of watery vapor is the most hopeful means of protection, and sometimes trivial causes of this class will produce surprising results. The old plan of a tub of water under the fruit tree, and a rope reaching from the tub into the branches, may serve a useful purpose. The evaporation from the water in the tub and of the water carried up by capillary action in the rope may spread the protecting folds of the water blanket over the tree. Such appliances, while of some use for a small garden, would be futile for a farm.

If the hoed crops of the farm are cultivated with reference to securing a constant supply of moisture in the upper soil, to draw by capillary action of the soil upon the reservoir of water in the subsoil, and at the same time to keep the surface soil in such condition as to prevent the too rapid dissipation of soil moisture, the fields may be saved from frost by a covering as impalpable as air but as effectual as eider down. Here is a conservatism of highest importance for both farmer and fruit grower. On the night of September 16, 1868, the Indian corn in Michigan was almost entirely killed by frost, only a few fields along the banks of rivers or the borders of lakes being spared. In these fields the corn stalks the next morning were dripping with dew. The evaporation from river or lake during this dry time (only one-eighth inch of rain in two weeks) had moistened the air in the vicinity and staved off the frost. Away from bodies of water the air was very dry and the dew point low. At the Agricultural College the temperature in the open air at 2 p. m., September 16, was 54°, the wet bulb marked 44°, and the temperature of dew-point was 31°. During the night the temperature sank to 24°, and a black frost was the result. If the air over the whole State had been as moist as it was along those rivers and lakes, a heavy dew would have fallen everywhere and the corn crop would have been saved.

This immunity from frost afforded by a moist atmosphere is a matter of great importance. I once read in a newspaper of the experience of a farmer who feared a frost on his growing corn, and who cultivated the field, stirring up a moister soil, and thus promoting evaporation, with this result, a heavy dew and a rescued crop, while neighboring fields of corn were cut by frost.

Ten years ago some beautiful beds of coleus were near my house. Early in October there were threatenings of frost. Every evening the beds were thoroughly wet down with cold water, and the tender coleus plants escaped frost while other plants near by were killed. At this time I found my neighbor one evening putting blankets over his grapevine to save the fruit from frost. I advised him to take away his woolen blankets, and put on the water blanket by a thorough drenching with water. This was done and the grapes saved.

This use of water to guard tender plants from frost has frequently been tried at the college, and generally with good results. Strawberries and grapes in blossom may be saved in this way and with little trouble, if a good supply of water and a sprinkling hose are available. The quick-witted farmer or gardener will find many ways of using water for this purpose. With irrigation we might defy frost during the growing season.

When water is not available for such purpose advantage may be taken of fire to ward off frosts; not by the hope of warming the body of air over a field, but by forming a canopy of smoke over the field to prevent the escape of heat by radiation from the ground. In France the vineyards at the time of blossoming of the grape vines are often preserved in this way. Any material that will form a dense smoke, like coal tar, is preferred for this purpose. A smudge is better than a bright fire because it makes more smoke.

* * * * * * *

The use of water in case of frost may be found beneficial even after the frost has occurred. Several cases are known where, after the severe frosts which occurred in May, 1895, several acres of grapes were saved by a thorough drenching with water early in the morning after they had been quite severely bitten by frost.

The following paragraph from the Orange Judd Farmer, August 31, 1895, is worth repeating in this connection:

Protection against frosts is a vital matter to fruit growers and truckers, whose season's labor and investment may be wiped out by a single destructive frost. The more valuable the crop and the greater the risk of frost the more effort and expense may be safely put into means of protecting against frosts. A famous California orange grove is equipped with a system of iron pipes, through which water is conducted to nozzles at frequent intervals, the idea being that the spray will ward off light frosts. Barrels of tar and rubbish in different parts of the orchard are available for making a smudge of smoke, which is the most practicable means yet devised. In the case of a freeze such as visited California two years ago and Florida last winter, or a real hard frost in other sections, neither of these methods is of much avail. Smoke is good against all light frosts and is easily obtained. Strawy manure, leaves, rubbish, etc., should be piled in the lowest places and about the sides of the field and covered with hay caps or ducking (previously painted with two coats of linseed oil and dried), so as to be always dry. Have a barrel of kerosene oil handy, some cans and torches. When the frosts threaten, set a night watch to inspect thermometers placed on stakes in various parts of the field, especially in the most exposed places. If the mercury drops to 35° by 1 or 2 a. m., it is likely to mean a frost of more or less severity before sunrise. Then call up the folks, light the torches, and let each person take torch and oil can (previously filled) and set fire to the row of rubbish heaps previously assigned him. If the wind blows the smoke away from the field, carry some rubbish over to the windward side, so that the smoke will be blown to instead of from the field. If the frost does not come, no expense worth mentioning has been incurred, as the piles can be scattered and plowed under for manure or burned, the ashes making excellent fertilizer. No prudent person thinks of leaving his buildings uninsured against fire. Certainly it is just as important to insure against frosts, so far as it can be done by such simple means as smoke coverings, or water. We wish all who have had experience in this matter would send it for publication.

Mr. E. P. Powell, a successful and brainy horticulturist in western New York, writes:

"The very best preventive against frost is not fires, but thorough spraying with water during the evening and night. When this can be done, we can overcome the danger from a fall of two or three degrees. This will often save our whole crop. This last spring I lost my grapes by a margin of not more than two degrees, but on a preceding night anticipated the frost by deluging the trellises with water. Of course bonfires may also be used. I anticipate we shall be compelled to adopt irrigation in all the Eastern States."

HOW DO RAINS AND WINDS SPREAD EPIDEMICS?

Professor Charles Mayer, as quoted from the Tennessee Journal of Meteorology, says:

Occasionally epidemic diseases seem to have been spread by clouds and the rain from them. The best authenticated case is that of a plague epidemic in the fifteenth century, which broke out most violently in a Swiss town immediately after a cloud, coming from an infected but distant region, discharged its rain upon that town.

[NOTE.—The relations of the weather to the spread of epidemics are still involved in great obscurity. Without going back to the fifteenth century, there was an excellent opportunity to investigate the subject in 1889–'90, when the grip spread over the whole civilized world. Its progress was so regular that for a long time there was a general belief that the active germs of influenza were carried as dust in the air by the winds, or perhaps by the upper currents. This idea

was dissipated by several memoirs that established the fact that the wind and weather were entirely subordinate factors and that the spread of the disease followed the lines of travel, especially the principal steamboat and railroad routes, and that, therefore, the germs were carried by diseased individuals or by articles that had been used by or had come in contact with them, and not by the winds. Of course the wind, in the narrow sense, may have carried the germs a few feet or rods from one individual to another, but not for distances of many miles. Several epidemics, such as the yellow fever, smallpox, and cholera, have been traced back to the direct importation of their contagia (whether animate or inanimate) by human agencies. Furthermore, it appears probable, from experimental data, that few disease germs can maintain their vitality more than a few hours when freely exposed to the air and sunshine, as would probably be the case if they were carried in the atmosphere as minute particles of dust. Therefore we think it probable that the winds and the rain must not be considered as the means by which diseases are spread between places that are any considerable distance apart. The limit to which living germs can be carried in the free air is not yet accurately known, but is believed to be quite small. The upper currents of air carried the vapor dust from Krakatoa, in 1883–'84, over the whole Northern Hemisphere, but many months were required to do this, and what little we know of the life history of disease germs teaches that they could not survive the sunshine, the dryness, and, perhaps, the cold of the upper currents. This is not to deny that the winds and the ocean currents can carry the coarser seeds of plants and fungi for many miles without injury; but the bacterial disease germs have a far more delicate organism than those seeds, and what would seem to be an allowable analogy between the transportation of seeds and germs fails when applied on a large scale. The wind may carry the germs to a great distance in the free air, but probably will kill them in so doing; local breezes may carry living germs a few hundred feet, but the diseased man or the convalescent, or the clothing and articles used by these, or the water we drink, or the food we eat, may carry them hundreds and thousands of miles. In the particular case of the spread of the epizootic and influenza epidemics of 1872–'73 among horses and cattle it was shown that they spread against the wind, or when there was a calm, quite as often as they spread with the wind.]

The following extract shows the result of an extensive investigation by the medical department of the Prussian army into the spread of the grip epidemic of 1889–90. It illustrates what we have above said and shows that we must not exaggerate the influence of the lower winds or the upper currents:

If we now collect together the results of experience as to the spread of the grip in the German army, we find that the view still holds good which prevailed at the beginning of the epidemic to the effect that the influenza is a disease that owes its origin to certain miasmatic external causes. On the other hand there does not appear to be any sure evidence of the influence of weather, climate, wind, or soil, or the season of the year. To the contrary the number of those cases in which the spread and the mode of spreading of the grip is to be attributed to human intercourse, is considerably increased by the experience of the last epidemic. It is not yet clear whether in this intercourse there is a direct carriage of the infectious material from person to person, or whether the infection is carried by the intervention of inanimate objects through the air. We are still ignorant of the real germ that causes the disease. A correspondent from Bavaria gives the following example which leads him to believe that inanimate substances may house the real germs of the disease and carry them far away: The medical officer of the garrison at Germersheim at a time when as yet not a single case of grip had occurred at that place, received a package from a place in Russia at which the disease prevailed severely. A short time after opening this package he fell sick of the grip, and soon after also his whole family. If it should be further demonstrated that dead substances can thus contribute to the spread of the disease germs, then, perhaps in this way we shall explain the appearance of the disease upon ships on the high seas. The germs attached to the cargo carried by a ship can, by spreading among the seamen, give rise to a violent, sudden outbreak of the grip.

Those interested in studying the distribution of disease and in defending the general atmosphere from calumny will find a mass of information in the Handbook of Geographical and Historical Pathology by Dr. August Hirsch, translated and published by the new Sydenham Society, London, 1883. The data there given show that not only influenza but nearly every other form of epidemic has a secondary dependence upon favorable weather. Some diseases that are characteristic of tropical climates have been known to break out in midwinter when the ground is frozen and covered with snow; these occurrences depended upon the habits of the people, the temperature and cleanliness of their houses, the food they ate, and the water they drank, rather than on any special meteorological conditions.

The "climate" of the sanitarian considers not merely the sunlight, temperature, moisture, and wind of the meteorologist, but many other factors that constitute the environment of man and have a bearing on health and disease.

DO THUNDERSTORMS ADVANCE AGAINST THE WIND?

The note from Mr. Hicks, published in the MONTHLY WEATHER REVIEW for April, page 131, has called forth the following letter from Mr. C. A. Perdue, voluntary observer, Beloit, Kans. (W. 98° 05′, N. 39° 30′, 200 miles west of the Missouri River), and the editor will be glad to obtain still other notes on this point.

In the report for April, which I have just received, I notice the statement of Mr. E. D. Hicks, observer at Marceline, Mo., of which I have heretofore seen no notice in print. This fact I have frequently observed since my residence here and can confirm his observation. It is probable that the same phenomenon will be shown to occur over all those treeless plains so much above sea level when further observations are made.

THE CAUSE OF THE LOW TEMPERATURES FOR AUGUST.

Mr. George N. Salisbury, Director of the Washington State Weather Service, writes in the August REVIEW, as follows:

This was an excessively dry month in all sections of the State. Practically no rain occurred until the rainy period, which began in the northwestern part of the State on the 19th, and ended in the eastern part on the 21st. Prior to this the drought had been of six weeks' continuance. West of the mountains the average rainfall was a trifle more than last year, but much less than that of any other August on record. East of the mountains it was a trifle less than last year, and less than any August on record. It was the coolest August of which there was any record here, notwithstanding the fact that there was so little rain and cloudiness. This is probably accounted for by the fact that on many days that were otherwise clear the sun was almost entirely obscured by excessive smoke from forest fires, which extended over a great part of the eastern as well as the entire western section of the State.

[NOTE.—The interesting suggestion here made has led the editor to compare the mean maxima for August, 1895, with those for August, 1894, and to do the same, also, for the monthly mean of the minima. The details, as given in the following tables for the eastern and western portions of the State, show that, as compared with 1894, the average and maximum temperatures of 1895 were, indeed, lower. The lowering of the maxima might be attributed to the direct effect of the absorption of solar rays by the smoke, but as the minimum temperatures were also lower, and that, too, even more so than the maxima, it becomes evident that the obscuration of the sunlight by the smoke is not the only, nor indeed the principal cause, of the average low temperature. The data for surrounding States show that the temperature was below the normal throughout the Pacific Coast, the Plateau Region, Montana, and the Canadian Provinces of Alberta, Saskatchewan, and Manitoba. Over the northwest part of this region the pressures were above the normal, and over all of it the rainfall was below normal. Everywhere, moreover, the lowest minima on record were reported.

Temperature extremes and differences in the State of Washington for the years 1894 *and* 1895.

Stations.	1894. Mean of—		1895. Mean of—		Difference.	
	Max.	Min.	Max.	Min.	Max.	Min.
Western part.						
Blaine	76.9	47.6	75.1	42.2	−1.8	−5.4
West Ferndale	78.8	44.0	76.6	46.1	−2.2	+2.1
East Sound	69.2	53.4	70.6	50.3	+1.4	−3.1
Olga	70.6	53.6	68.4	50.7	−2.2	−2.9
Tatoosh	62.2	51.8	59.4	49.8	−2.8	−2.0
Neah Bay	69.3	50.7	66.9	48.0	−2.4	−2.7
Port Angeles	67.1	51.5	64.6	47.9	−2.5	+3.6
Stillaguamish	77.4	46.9	73.1	42.8	−4.3	−4.1
Snohomish	72.6	51.5	74.2	46.2	+1.6	−5.3
Seattle	75.7	56.1	71.6	52.5	−4.1	−3.6
Tacoma	76.9	53.5	72.5	48.9	−4.4	−4.6
Olympia	80.0	49.9	79.6	45.4	−0.4	−4.5
Fort Canby	66.7	56.2	63.9	52.2	−2.8	−4.0
Means	73.6	51.3	71.9	47.6	−1.7	−3.7
Eastern part.						
Bridgeport	94.4	56.5	90.8	46.1	−3.6	−5.4
Fort Spokane	92.5	51.2	88.9	45.0	−3.6	−6.2
Lakeside	87.2	65.8	85.1	59.7	−4.1	−6.1
Spokane	86.8	56.0	82.8	52.3	−4.0	−3.7
Rosalia	84.9	44.8	81.8	44.7	−3.1	−0.1
Colfax	82.6	50.3	81.4	45.7	−1.2	−4.6
Moxee	90.3	55.3	87.9	50.5	−2.4	−4.8
Fort Simcoe	87.7	59.8	84.7	57.6	−3.0	−2.2
Kennewick	92.5	63.3	84.4	54.4	−8.1	−8.4
Ellensburg	83.4	52.8	85.8	54.3	+2.2	+1.5
Hunters	80.7	45.3	76.5	39.6	−4.2	−5.7
Waterville	87.3	51.9	81.1	50.0	−6.2	−1.9
Walla Walla	91.2	62.4	86.9	58.1	−4.3	−4.3
Pomeroy	79.7	64.7	83.2	60.7	+3.5	−4.0
Dayton	88.8	57.4	85.4	53.3	−3.4	−4.1
Mean	87.4	54.6	84.2	50.3	−3.2	−4.3
Mean of whole State	80.7	52.7	77.9	48.9	−2.8	−3.8

We thus see that we have here to do with a wide-spread phenomenon, in which the smoke from forest fires plays a very subordinate part; there must have been some general cause at work. The centers of areas of low pressure have rarely passed over this region during the current month, and the centers of areas of high pressure have been unusually persistent; but we do not go backward very far toward the cause when we say that the low temperature and the dryness were due to the excess of pressure, as these three climatic features are generally associated together, and neither one can be spoken of as the cause of the other, but they all alike follow from one feature in atmospheric motion that immediately precedes them, namely, the slow descent of the upper air toward the earth's surface. The charts of monthly mean temperatures and pressures and winds for the Northern Hemisphere show that an area of high pressure whose center is over the eastern Pacific ocean between latitudes 20° and 40° moves northward during half of the year, say from April to August, and thence slowly backward. It usually reaches its northern position in latitude 40° during August, at which time it also approaches nearest to the coasts of Washington, Oregon, and British Columbia; sometimes an arm stretches far northeastward over these States. Such an area of high pressure, with comparatively clear, cool, dry air is an area of descending air, and when abnormally cool, dry weather prevails over Washington and the surrounding country, as in the current month, it simply means that there has been an unusual flow of northerly winds over that region due to the unusual position of the area of high pressure; that is to say, the region in which air descends to the earth's surface has been pushed to the north and east a little beyond its ordinary position. Perhaps we may infer from this that the regions where air ascends have been pushed correspondingly far to the south and east. In order, therefore, to arrive at a fundamental explanation of the cause of the cold August in the State of Washington it will be necessary for us to explain how the region of descending air and high pressure came to be so far toward the northeast. We shall not attempt to present in detail the mechanics of this process, but in general we may say that the atmosphere moves in complex curved paths around and out of, and again around and into, the regions of high pressure and low pressure. No simple drawing could present the irregularities of the path of the air as it passes from the high to the low pressure, and from the upper strata to the lower strata, or vice versa. If we follow a particle in its path we shall find it subject to forces and pressures that push it now toward and now from the equator, now upward and now downward toward the surface of the earth. Its motion is largely determined by its own intrinsic density; the denser it is by reason of coldness or dryness the more it is drawn down to the surface by gravity and driven toward the equator by centrifugal force, and, on the contrary, the lighter it is, by reason of its warmth and moisture, the more it is pushed upward and toward the polar region. What is true of the smaller masses will be true of the large aggregations. If the region of high pressure (which is properly called a pleiobar) over the Pacific were, during August, 1895, fed by air a little colder or drier than usual, and therefore a little denser than usual, it would assume a more southerly position and bring lower temperatures to Washington; if the air within this pleiobar descended more slowly than usual, giving it more time to cool by radiation, then it would reach the earth's surface colder, and would bring lower temperatures to Washington. It is by some such process as this that the editor would explain the low temperatures of August, 1895. We are not yet ready to foresee when the pleiobars and meiobars, or the great areas of high and low pressure, will have positions unusually far to the north or south, or east or west of their normal positions, but that they must change, and for the reasons just given, is sufficiently evident. We must master this feature in the mechanics of the atmosphere before we attempt to explain the variations of the seasons by introducing any other principle.]

AN AURORA IN SOUTH CAROLINA AND KENTUCKY.

The Weather Bureau observer at Charleston, S. C., Mr. Lewis N. Jesunofsky, describes the aurora of the 26th, as follows:

An aurora was observed at 10.47 p. m. to 10.58 p. m. Altitude, 24°; azimuth (counted from S. to W. to N., &c.), 110° to 190°. A dark segment or arch rose to 17°, with a crown of light to 24°, one large streamer lasting from 10.51 p. m. to 10.53 p. m.; azimuth, 116° to 122°, and altitude 30°. The display was accompanied by a thin veil of vapor, through which the stars could be seen.

The voluntary observer at Greendale, Fayette Co., Ky. (Mr R. I. Spurr), also notes an aurora on the 26th.

These widely separated stations certainly experienced two independent auroral displays. Both stations were near areas of thunderstorm development. No other stations near by record having seen an aurora.

These cases relate to those interesting sporadic auroras whose occurrence illustrate the general principle that the auroral light is frequently and probably always low down in the atmosphere, emanating from a layer of electrified vapor lying between regions of cold, dry, and warm, moist air, respectively. In the winter season the warm, moist air is generally above the cold and dry air, but in the summer season instances may occur where, for a short time and over small areas, the cold, dry air is above and, of course, slowly settling down. In the present instance South Carolina and Kentucky were covered with a lower layer of warm, moist air, but above this thunderclouds existed, with a great display of lightning over these and the adjoining States. An extensive West Indian hurricane to the south of Cuba was moving westward. It was mentioned by the present Editor as early as 1874 that a region of auroral displays is often bounded on the

south, east, and west by a region of thunderstorm development, as though the violent discharges from highly-electrified air shaded off into gentler discharges in the distant regions, where the air was less highly electrified. A mass of air (or rather the moisture and dust contained in it) may carry a charge of electricity a great distance, and may gradually get rid of it by a series of discharges, at first violent, as in the lightning flash, but gradually diminishing, as in the luminous or phosphorescent clouds and the most brilliant forms of aurora, until finally the discharges can give rise to only the feeblest auroras. This gradual diminution in the intensity of the discharge may depend upon a corresponding gradual diminution in the quantity of vapor in the air or on a gradual change in the condition of the vapor, namely, the difference between aqueous vapor and ice vapor. In the Annual Report of the Chief Signal Officer for 1876 the present Editor has given a study of the aurora of April 7, 1874, and the following quotations, from page 309 of that volume, are here given:

(*a*) The auroral light exists sometimes as patches or clouds, but more frequently as luminous lines [more or less closely packed together] inclined to the earth's surface and approximately parallel to the free magnetic needle.

(*b*) The luminous lines are associated together, forming wave and cylindric surfaces; such surfaces appear sharply defined in the portions where their tangent planes are directed toward the observer, giving rise to the appearance of beams or streamers which are, therefore, ill defined on one edge, but sharply defined on the other.

(*c*) The luminous wave surfaces are themselves arranged parallel to each other, giving rise to arches or belts across the sky which, when the observer is favorably situated so that his lines of sight are nearly parallel to the luminous lines, are seen by him as striated belts or arches, each stria of which corresponds to an element of the wave surface, and which structure is well described by one observer as resembling the vertebrae and ribs of an animal. A slight curvature in the luminous lines, or a perspective effect, prevents the striated appearance from being well seen except near the meridian. When the luminous lines are quite straight, and especially when associated together in perfect parallelism, but without being grouped into wave surfaces, there results the corona around the magnetic zenith with "merry dancers" on all sides, as recorded by one observer. This phase of the aurora is probably best seen when the luminous lines are comparatively short.

(*d*) Inasmuch as the definite edge of a streamer is simply an optical effect produced by viewing those portions of a curved surface that lie in the tangent plane that passes to the observer, it follows that another person at a distance, viewing the same wave surface will receive from a slightly different portion thereof the impression of a definite streamer, if, indeed, he sees any at all. For a similar reason, that which appears to one person as a well defined arch or belt near his zenith will appear to an observer farther south as a collection of streamers which may, in fact, easily become so faint or ill defined as to be scarcely noticeable, while the streamers which he does observe, as such, may be formed by an entirely different set of luminous lines and surfaces. A third observer farther to the north and looking southward may, with equal ease, be observing quite a different object from either of the others. The statement is, therefore, warranted that although the auroral light emanates from definite points and lines, yet the arches and streamers made up of these have no proper locus.

(*e*) The elementary luminous lines have motions both transverse and parallel to their direction, but in addition to this, slight changes in the flexures or arrangement of the luminous surfaces, arranged, as they often are one behind the other, may give rise to a complete change in the appearance of the arches and beams. Thus it results that the movements of the arches up and down, or north and south, and the movements of the beams or striæ, take place in a manner entirely diverse from the changes going on among the luminous lines.

(*f*) A comparison of the apparent eastward and westward angular motion of the waves near the zenith of any station with the apparent nature of the streamers observed from stations farther south would, if the same objects were observed, afford an additional means of determining the average elevation of the general mass of light. The data at hand as to velocities are too crude to afford precise results in the present case. The general indications are, however, very strongly in favor of the conclusion that the luminous lines were within 10 miles of the earth.

(*g*) The electric phenomena of the atmosphere embrace on the one hand lightning attending cumulus clouds, and, on the other, the aurora attending cirrus or stratus and haze, and in both cases the electrification of the atmosphere is evidently primarily due to the inductive influence of the earth. Between these comes a third class of electric discharges, that, namely, which gives rise to the phosphorescence of clouds. Such phosphorescence was noted during the present aurora on April 7, 1874, at two stations. It has been observed by myself in Washington on occasions too numerous to enumerate, when the whole heavens were obscured and rain or snow imminent; especially has it been remarkably distinct on the edges of the banks of clouds advancing from the northwest, and immediately preceding a sudden change from warm, moist, southerly to cold, dry northerly or northwesterly winds. It has also been frequently recorded in connection with the lightning and rain of hurricanes. In fact the luminous or phosphorescent cloud due to the silent discharge of electricity between its component atoms is a far more frequent phenomenon in these latitudes than either lightning or auroras, and connects together all the luminous electric phenomena of the atmosphere in such a way as to show that while the electricity may be due to the induction of the earth, the form of the discharge is due to the state in which the atmospheric moisture exists at the time.

(*h*) It accords with the preceding views that we find the beams and arches higher above the ground and far less numerous and brilliant in the west than in the east, and that, in general, the lower Lakes and New England have ever been distinguished by brilliant auroral displays, since here not only mountains with their high electric tension, but moisture and rapid alternations of temperature predominate.

The above long quotation shows that we may expect local auroras whenever dry, cold air separates two regions of highly electrified air. The extent and brightness of the auroral display depends upon details that we can not yet enumerate.

As illustrating the weather conditions and thunderstorm phenomena over the auroral region that lay between the local storms of the Ohio Valley and the hurricane south of Cuba on the evenings of August 25 and 26, we give the following quotation from the letter of Mr. H. W. O. Margary, voluntary observer at Eustis, Lake Co., Fla.

DATA OF ELECTRICAL STORM AS SEEN FROM OBSERVATORY GROVE, EUSTIS, FLA., AUGUST 25, 1895.

6.30 p. m.—Local time. Wind light northeast. Electrical storm in southwest with constant lightning among two or more strata of clouds as if from one to the other strata, with an occasional flash to the horizon. Another dense bank of clouds slowly approaching it from the north, and also a bank high up in northeast.

7.00 p. m.—Rain began to fall in west from clouds, with clear space to horizon below, showing clearly in several places on the clear sky of western horizon. Numerous small clouds moving from different directions toward main body of clouds in southwest.

7.15 p. m.—Clouds rapidly gathering from all quarters toward the southwest; very dense; lightning in southwest and north. The chief point from which the lightning comes is a black, fleecy cloud in southwest, about 50° to 60° above the southwestern horizon. Rain increasing along western horizon in spots. Wind getting easterly but very light, at times up to 5 or 6 miles an hour. Lightning increasing in east. Wind getting puffy and very distant thunder at times, but more continuous than heretofore, and getting louder.

7.30 p. m.—Appears to be raining heavily in west-southwest and a shower in the west and northwest, but all separate; wind still light northeast to east.

7.35 p. m.—A heavy belt of black, tongue-like, ragged cloud moving up slowly from south and southeast; lightning now principally in north along horizon; three northern clouds, that passed partly to westward, seem to be absorbing the electrical clouds in southwest.

7.50 p. m.—Wind comes from west and very light, and, at 7.53, back again to east; variable from east and west; light puffs.

8.20 p. m.—Storm passing off to northwest, as the clouds from it have absorbed those in southwest and carried them to northwest; lightning still quite vivid in north.

OPTICAL PHENOMENON.

It may be interesting to publish and explain the following phenomenon, specially communicated, from the Ohio Weather and Crop Report, by Mr. Samuel W. Courtright, voluntary observer at Circleville, Ohio. He states that—

On February 12, 1895, about 9.30 p. m., a beautiful phenomenon was witnessed in the heavens, almost in the zenith. It resembled a distinct and perfect rainbow, and the moon, which had risen to a height of about 45°, was in the center of a beautiful cross of bright, light yellow bars. These bars crossed each other at right angles on the face of the moon. The horizontal bars described an arc of about one-fourth of the heavens, and at about 15° on either side of the moon was a similar cross in fainter outlines. The eastern sky was misty and heavy, while the western sky was clear and the stars shining brightly. The phenomenon was witnessed by a great many of our people.

We gather from the above report that on this occasion the principal phenomena observed were: (1) A distinct and perfect rainbow partially encircling the zenith, and so high above the moon as to be "almost in the zenith." (2) A beautiful cross of horizontal and vertical bars of a bright light yellow intersecting each other on the face of the moon. (3) Two similar fainter crosses at about 15° to the right and the left of the moon.

The general explanation of optical phenomena seen about the sun and moon was given on page 14 of this REVIEW for January, and page 56 of this REVIEW for February, 1895. (1) The arc of colored light or horizontal rainbow concentric with the zenith is caused by rays of sunlight that enter and leave the little vertical prisms of ice that are slowly settling down through the atmosphere. The top and bottom facets or faces of these crystals are inclined to each other and the refraction through these faces produces prismatic colors just as in an ordinary prism. The diameter of the rainbow circle around the zenith is smaller in proportion as the sun or moon is higher above the horizon. (2) The large cross of light yellow bars is due to the simple reflection of the moonlight from the outside facets of innumerable crystals of ice, all of which are slowly settling with their axes vertical. (3) The small and fainter crosses on either side of the moon are due to two reflections from the interior surfaces of crystals.

A complete study of the phenomena of parhelia can be made by preparing a number of hollow prisms made in the exact shape of the crystals of snow and ice that occur in nature. These prisms should be made of thin plates of glass cemented together at the edges, and should be filled with water, whose refractive and dispersive powers are of course very nearly the same as those of ice. Let such a prism be suspended in the sunlight in various positions with reference to the zenith, and in the position that it assumes when falling slowly through the air. Set it to revolving rapidly, as it may do when falling freely. If a special bright reflection is seen when viewed from a certain direction then this represents the position of a mock sun due to total reflection within the prism. If prismatic colors are seen this represents the position of a rainbow. If a moderately bright reflection from an external surface is seen this gives the location of some one of the numerous bands of light that may occur.

THE COLD SUMMER OF 1816.

An article in the New York Sun copied into the Iowa Monthly Review for July, 1895, gives some details about the remarkable summer of 1816, as remembered by James Winchester of Vermont. It is said that in June of that year snow fell to the depth of three inches in New York, Pennsylvania, and New Jersey on the 17th; five inches in all the New England States, except three inches in Vermont. There was snow and ice in every month of this year. The storm of June 17 was as severe as any that ever occurred in the depth of winter; it began about noon, increasing in fury until night, by which time the roads were impassable by reason of the snow drifts; many were bewildered in the blinding storm and frozen to death. During June, July, and August the wind was continuously from the north, fierce and cold; July was colder than June, and August colder than July; there was a heavy snowstorm August 30th. The first two weeks in September brought the first warm weather of the year, but on the 16th of that month the cold weather suddenly returned and continued increasing until winter. The year 1816 had neither spring, summer, nor autumn. The only crop of corn raised in that part of Vermont that summer was saved by keeping bonfires burning around the cornfield night and day. The crop of 1817 was raised from the seed of 1815. The summer of 1817 was one of the hottest and driest ever known in that region.

NOTE.—The preceding statement agrees with what we may gather from the interesting book by Charles Peirce, published in Philadelphia in 1847, entitled "A Meteorological Account of the Weather in Philadelphia," from January 1, 1790 to January 1, 1847. A record was begun by Peirce, at Portsmouth, N. H., in 1793, and was continued in Philadelphia, where he had access to numerous other journals. According to this work the mean temperatures at Philadelphia during the year 1816 were the lowest on record, and were as follows: January, 32°; February, 28°; March, 36°; April, 47°; May, 57°; June, 64°; July, 68°; August, 66°; September, 62°; October, 52°; November, 42°; December, 32°.

On page 247 Mr. Peirce says:

> The temperature of the whole year was only 49°, it being the coldest year we have on our record. Although there was no uncommonly cold weather during the three winter months, yet there was ice during every month in the year, not excepting June, July, and August. There was scarcely a vegetable came to perfection north and east of the Potomac. The cold weather during the summer not only extended through America, but throughout Europe. One of the most celebrated meteorologists in England, on reviewing the weather of the year, said: "It would ever be remembered that 1816 was a year in which there was no summer, and the temperature of the year (as a whole) was the lowest ever known." It was also the coldest summer ever known in the West Indies and in Africa. The medium temperature of the whole year in Philadelphia was only 49°.

A POPULAR SUBSTITUTE FOR THE BAROMETER.

In The Weather and Crops, published by the Illinois State Weather Service, we find a short description of a simple instrument that serves the purpose of showing approximately the changes that may be going on in the pressure of the air. The description reads as follows:

> If a large-mouthed glass jar—fruit or pickle jar will do—be filled about two-thirds full of water, and in it be placed, inverted, a smaller long-necked flask, with mouth entering the water, the increasing or decreasing pressure of the outer atmosphere will cause the water to rise or fall within the flask. Clear, fine weather will be foretold by the water rising in the flask; stormy, wet, or bad weather by the water falling.

The device thus explained will, undoubtedly, show variations in atmospheric pressure, and all the more correctly in proportion as the temperature of the air within the flask remains stationary. If we wish to be at all accurate, or if we wish not to be misled by the effects of changes of temperature we must either keep the temperature constant or else make a numerical allowance for the effect of its variations. If the temperature within the flask rises 1 degree Fahrenheit, its confined air will expand by $\frac{1}{492}$ of its volume, and the water in the neck of the flask will be pushed down to a corresponding amount. On the other hand, if the atmospheric pressure should diminish by 0.06 of an inch below a normal pressure of 30 inches, the air within the flask being slightly relieved of its pressure would expand by the $\frac{1}{492}$ part of its volume, and the water in the neck pushed down as before. In so far as we cannot rely upon the constant temperature of the air within the flask we must therefore make an allowance of 0.06 for each degree of change. As this apparatus is so sensitive to temperature it may therefore be considered as a thermometer when the atmospheric pressure is constant. In fact this is known as the first form of air thermometer which was used by the physician Sanctorius, who learned it from Galileo in 1596, and it was the study of the fluctuations of this apparatus that contributed greatly toward the discovery of the pressure of the air and the invention of mercurial barometers and the ordinary spirit thermometer. If one wishes to use this apparatus as a barometer, and needs, therefore, to know its temperature correctly to within a degree, he will find it best to fasten the smaller flask and its long neck, or, still better, a long glass tube, permanently within the outer glass jar and fill the latter with water so that the whole flask is cov-

ered. A thermometer whose bulb is under the water will give the temperature of the water and the air within it, and, if the water be well stirred, all will have the same temperature.

An early modification of this simple barometer was for a long time manufactured by expert glass blowers in Florence, and was called the Florentine experiment. In this arrangement the inverted flask was made quite small, and weighted so that it floated freely like a small balloon in a jar of water; when the temperature of the water rose, or when the atmospheric pressure diminished, the air within the flask expanded and the density of the balloon diminished, so that it rose to the surface. If, however, the glass flasks are hermetically sealed so that the air within them can not expand and change their density to any extent; then, if the water in the jar becomes warmer, the flasks will descend because their own density will then be greater than that of the water. If, again, the open mouth of the jar be hermetically sealed, inclosing air above the water, we have a new condition, viz, the external atmospheric pressure has no longer any influence, while the changes of temperature have a twofold influence; by expanding the water its density is diminished, but by expanding the air above the water the quasi atmospheric pressure within the jar is increased. These four combinations, namely, closed or open flasks floating in closed or open jars of water, formed what are known as the Florentine and the Stuttgart experiments with the Cartesian divers, and the phenomena that they exhibited were widely discussed by Europeans in the seventeenth century.

THE CARBONIC ACID GAS IN THE ATMOSPHERE.

Both geology and agriculture are interested equally with meteorology in the part played by the small quantity of carbonic acid gas that exists in the atmosphere. The leaves absorb and assimilate a portion; the falling raindrops and the surface water of the ocean absorb another portion; it is exhaled from the lungs and given off in still greater quantities from every burning substance. It may accumulate temporarily in some regions, but the slow diffusion and swifter winds carry it away. It ought to diminish as we ascend above the earth's surface, but the rapidly rising and falling currents of air tend to preserve a fairly uniform mixture very much as they do in the case of aqueous vapor. Evidently there is a general balance between the production and absorption of carbonic acid gas, so that, like the temperature of the air and the quantity of rain or any other meteorological element, we find no great progressive secular increase or diminution. The following paragraphs, reviewing the latest addition to our knowledge of this subject, are translated from Wollny's Forschungen (1895, Vol. XVIII, p. 409):

"In order to arrive at a more accurate knowledge of the distribution of carbonic acid gas in the atmosphere, S. A. Andrée, the Swedish aeronaut, collected samples of air in exhausted tubes on most of his balloon voyages, and took care, moreover, to do this while the balloon was descending and as far as possible from the car of the balloon in order to avoid contamination from any gases that might come from the balloon itself. These samples were analyzed at the high school in Stockholm by Miss Palmqvist, who had already published an extensive investigation into the carbonic acid gas contained in the atmosphere over the experimental field at Stockholm.

"As compared with the data for the earth's surface near Stockholm, published by Palmqvist, and those for Wexholm, published by Selanders, the Andrée results, as shown in a table arranged according to the altitudes of the respective layers of air do not prove any diminution of carbonic acid gas with altitude up to the highest point, 4,300 meters, attained in these balloon ascensions. On the other hand the percentages of carbonic acid gas by volume throughout the different strata of air are very much the same as those observed at the surface of the earth. On the average we find in 10,000 volumes at the earth's surface from 3.03 to 3.20 volumes of carbonic acid gas; at altitudes of 1,000 to 3,000 meters, 3.23 volumes; at altitudes of 3,000 to 4,000 meters, 3.24 volumes. On the other hand notable differences are remarked when we arrange the percentages for the higher and freer strata of air according to the direction of the wind, although the differences that are thus brought out are not entirely systematic, as might have been expected, because in the atmosphere many currents intersect so that more or less appreciable mixtures of masses of air having various percentages of carbonic acid gas must occur. But this apparent dependence on the wind must suggest further investigation as to how far the carbonic acid gas present in the atmosphere depends upon the place from which the air came, and especially on the contact of this air with the earth's surface, since it is to be assumed that the absorption and development of carbonic acid gas takes place at the earth's surface and not in the atmosphere.

"From this point of view the author has, by utilizing the weather reports of the Central Meteorological Institution at Stockholm, classified the measurements of carbonic acid gas at the two stations above mentioned, according as they were made within areas of barometric maxima or minima, and has compared these values with the corresponding monthly means. At both stations the percentages of carbonic acid gas are found to be above the monthly means in the maxima, but below in the minima. If we may generalize this result, it might be said that a descending mass of air brings with it a higher percentage of carbonic acid gas, which is subsequently diminished by absorption near the earth's surface, so that the ascending current has a smaller percentage.

"The hypothesis that the larger percentage in the maxima is caused by the calmness of the atmosphere seems to be disproved by the fact that scarcely half of the cases cited in Andrée's table showed a perfect calm and that these occurred in the months of December and January, when a large quantity of carbonic acid gas is thrown into the quiet atmosphere by the combustion of wood and coal in the ordinary industrial operations. We must indeed assume that air which is rich in carbonic acid gas descends to the earth's surface from the upper strata of the atmosphere; but we must not conclude that, in general, the atmosphere should therefore be found to be richer in carbonic acid gas during high barometric pressure and poorer during low pressure. On the contrary, other matters ordinarily make themselves felt in such a way that the influence of high pressure and descending currents is entirely obliterated and pushed into the background. The observations at Wexholm demonstrate that the north and northwest land winds contain much more carbonic acid gas than the southeast ocean winds, whose air, flowing over the surface of the Baltic, has suffered a great loss of carbonic acid gas.

"In order to test the question whether the air within an area of barometric high pressure is really richer in carbonic acid gas than in a barometric minimum one must take account of the above-mentioned and other disturbing influences. For the present Andrée thinks himself justified in adopting the conclusion that in the region investigated by him the lower atmospheric strata received more carbonic acid gas from the upper strata than from the earth's surface. This agrees with the observation made by Nansen on his Greenland expedition at altitudes of 2,300 to 2,700 meters and at temperatures of —19.4° to —24° C. in a locality where the occurrence of carbonic acid gas arising from artificial combustion was out of the question; here it was found that the percentage of carbonic acid gas was as large and even larger than in the experimental field near Stockholm. Andrée does not consider that it is yet time to offer any explanation of this larger percentage

of carbonic acid gas, and nothing can be said as yet as to whether these results for high northern latitudes occur also in other regions.

"The question here raised is one of great importance in the theory of the interaction of the atmosphere and the earth, and it can only be brought to a definite solution when the greatest possible number of investigations into the percentages of carbonic acid gas in the atmospheric strata are carried out by means of balloon voyages. Observations made upon high mountains can not replace those made on balloon voyages, because on the mountain tops we are still under the influence of the absorption by the earth's surface."

METEOROLOGICAL TABLES.

By A. J. HENRY, Chief of Division of Records and Meteorological Data.

Table I gives, for about 130 Weather Bureau stations making two observations daily and for about 20 others making only the 8 p. m. observation, the data ordinarily needed for climatological studies, viz, the monthly mean pressure, the monthly means and extremes of temperature, the average conditions as to moisture, cloudiness, movement of the wind, and the departures from normals in the case of pressure, temperature, and precipitation.

Table II gives, for about 2,400 stations occupied by voluntary observers, the extreme maximum and minimum temperatures, the mean temperature deduced from the average of all the daily maxima and minima, or other readings, as indicated by the numeral following the name of the station; the total monthly precipitation, and the total depth in inches of any snow that may have fallen. When the spaces in the snow column are left blank it indicates that no snow has fallen, but when it is possible that there may have been snow of which no record has been made, that fact is indicated by leaders, thus (. . . .).

Table III gives, for about 30 Canadian stations, the mean pressure, mean temperature, total precipitation, prevailing wind, and the respective departures from normal values. Reports from Newfoundland and Bermuda are included in this table for convenience of tabulation.

Table IV gives, for 82 stations, the mean hourly temperatures deduced from thermographs of the pattern described and figured in the Report of the Chief of the Weather Bureau, 1891–'92, p. 29.

Table V gives, for 67 stations, the mean hourly pressures as automatically registered by Richard barographs, except for Washington, D. C., where Foreman's barograph is in use. Both instruments are described in the Report of the Chief of the Weather Bureau, 1891–'92, pp. 26 and 30.

Table VI gives, for 136 stations, the arithmetical means of the hourly movements of the wind ending with the respective hours, as registered automatically by the Robinson anemometer, in conjunction with an electrical recording mechanism, described and illustrated in the Report of the Chief of the Weather Bureau, 1891–'92, p. 19.

Table VII gives the danger points, the highest, lowest, and mean stages of water in the rivers at cities and towns on the principal rivers; also the distance of the station from the river mouth along the river channel.

Table VIII gives the maximum, minimum, and mean readings of the wet-bulb thermometer for 135 stations, as determined by observations of the whirled psychrometer at 8 a. m. and 8 p. m., daily.

The difference between mean local time and seventy-fifth meridian time is also given in the table.

Table IX gives, for all stations that make observations at 8 a. m. and 8 p. m., the four component directions and the resultant directions based on these two observations only and without considering the velocity of the wind. The total movement for the whole month, as read from the dial of the Robinson anemometer, is given for each station in Table I. By adding the four components for the stations comprised in any geographical division one may obtain the average resultant direction for that division.

Table X gives the total number of stations in each State from which meteorological reports of any kind have been received, and the number of such stations reporting thunderstorms (T) and auroras (A) on each day of the current month.

Table XI gives, for 42 stations, the percentages of hourly sunshine as derived from the automatic records made by two essentially different types of instruments, designated, respectively, the thermometric recorder and the photographic recorder. The kind of instrument used at each station is indicated in the table by the letter T or P in the column following the name of the station.

Table XII gives the records of hourly precipitation as reported by stations equipped with automatic gauges, of which 37 are known as float gauges and 7 as weighing rain and snow gauges.

Table XIII gives the record of excessive precipitation at all stations from which reports are received.

Table XIV gives a record of the heaviest rainfalls for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering rain gauges.

Additional information concerning the tables will be found in the January, 1895, REVIEW.

TABLE I.—*Climatological data for Weather Bureau Stations, August, 1895.*

Stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure in inches. Mean pressure, 8 a. m. and 8 p. m. ± 2.	Mean reduced.	Departure from normal.	Temperature of the air, in degrees Fahrenheit. Mean max. and min. ± 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Humidity and precipitation. Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01, or more.	Wind. Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Monthly temperature data since opening station. Absolute maximum.	Year.	Absolute minimum.	Year.
New England.						68.4	+ 1.3										3.84	− 0.4														
Eastport	76	23	29.81	29.90	− .07	61.6	+ 0.8	80	17	69	49	22	54	24	54	80	4.83	+ 1.4	12	5,911	s.	29	s.	7	5	19	7	5.8	90	1893	45	1880
Portland, Me	103	24	29.80	29.90	− .08	66.2	+ 1.2	83	10	74	47	22	58	22	58	79	4.72	+ 1.0	12	5,007	w.	33	w.	21	10	10	11	5.5	95	1876	46	1894
Northfield	872	9	29.01	29.93	− .05	62.9	+ 0.2	85	11	74	36	22	52	40	56	82	4.64	+ 0.4	16	5,558	sw.	33	sw.	24	8	11	12	6.0	91	1893	33	1894
Boston	125	25	29.81	29.94	− .05	71.0	+ 2.5	89	6	79	50	22	63	23	59	69	3.24	− 1.2	7	6,895	w.	29	sw.	23	11	17	3	4.7	97	1881	47	*
Nantucket	14	9	29.96	29.97	− .05	68.8	+ 1.4	80	10	74	57	22	63	16	63	85	4.46	+ 0.0	5	5,819	nw.	30	ne.	21	9	16	6	5.0	86	1892	53	1887
Woods Hole	.....	18	.....	.....	.....	69.2	+ 0.7	80	11	74	57	22	64	15	.....	.....	3.34	− 0.8	5	9,510	s.	36	sw.	7	20	8	3	3.3	85	1876	52	1880
Vineyard Haven	.....	9	.....	.....	.....	71.2	+ 0.2	85	6	79	56	6	64	29	.....	.....	3.47	− 0.8	5	.....	sw.	.....	.....	...	11	9	11	...	91	1892	54	1880
Block Island	37	15	29.94	29.97	− .04	69.4	+ 1.3	80	29	74	53	22	64	14	64	86	4.37	+ 1.1	5	8,510	sw.	32	sw.	24	8	22	1	4.6	85	*	49	1894
Narragansett Pier	.....	14	.....	.....	.....	69.8	+ 1.4	85	29	77	45	22	62	32	.....	.....	2.92	− 0.8	5	.....	sw.	.....	.....	...	21	3	7	...	94	1891	49	1887
New Haven	107	23	29.84	29.95	− .07	71.4	+ 2.9	87	9	80	50	22	62	25	62	82	3.91	− 1.6	9	5,680	sw.	25	se.	7	13	12	6	4.2	91	1888	43	1894
New London	45	25	29.92	29.97	− .05	70.4	+ 1.9	85	13	78	50	22	63	21	63	79	2.41	− 2.6	7	4,641	sw.	24	sw.	3	15	12	4	3.7	92	1891	47	1885
Mid. Atlan. States.						76.1	+ 2.7										2.63	− 2.2														
Albany	85	22	29.86	29.95	− .04	72.4	+ 2.2	92	11	82	48	22	62	28	60	72	3.14	− 0.6	14	4,865	s.	28	s.	17	6	16	9	5.6	94	1893	45	1875
New York	314	25	29.64	29.96	− .06	73.8	+ 2.0	90	29	81	55	22	66	21	64	75	4.12	− 0.6	9	8,019	sw.	62	sw.	4	13	14	4	4.4	96	*	51	*
Harrisburg	377	8	29.58	29.97	− .06	75.0	+ 2.9	95	10	85	50	22	65	29	62	69	2.36	− 2.5	9	4,132	w.	25	nw.	19	16	11	4	3.7	95	*	50	*
Philadelphia	117	25	29.85	29.97	− .06	77.4	+ 3.4	98	11	87	56	1	68	24	62	66	0.59	− 4.2	6	6,637	sw.	28	sw.	24	12	17	2	2.4	99	1881	51	1890
New Brunswick	.....	9	.....	.....	.....	74.2	+ 2.4	94	29	86	46	22	62	33	.....	.....	4.40	− 0.5	8	.....	nw.	.....	.....	...	6	23	2	....	98	1891	46	1895
Baltimore	179	25	29.78	29.97	− .06	77.1	+ 2.6	96	10	87	57	22	67	28	63	66	2.43	− 2.0	6	4,890	sw.	36	nw.	31	12	17	2	3.6	98	1881	51	1890
Washington	112	25	29.87	29.98	− .06	77.2	+ 3.7	97	11	88	54	1	67	29	65	72	1.26	− 3.2	9	3,806	s.	25	nw.	4	18	12	1	3.3	101	1881	49	1890
Cape Henry	.....	22	.....	.....	.....	78.1	+ 1.7	98	12	86	61	3	70	24	.....	.....	3.82	− 2.0	7	.....	sw.	.....	.....	...	12	15	4	....	103	1881	57	1888
Lynchburg	685	25	29.29	30.00	− .03	77.3	+ 2.8	96	11	88	58	2	66	32	65	70	1.63	− 2.4	12	2,537	sw.	23	sw.	14	11	16	4	4.1	100	1881	47	1890
Norfolk	57	25	29.94	30.00	− .02	78.7	+ 2.9	95	11	87	63	1	70	24	70	81	2.58	− 3.8	8	5,098	sw.	25	nw.	12	17	11	3	3.4	99	1881	56	1888
S. Atlantic States.						79.8	+ 1.4										5.80	− 0.6														
Charlotte	773	17	29.22	30.01	− .01	77.5	+ 1.0	94	5	87	59	2	68	25	66	77	4.41	− 0.9	11	3,781	sw.	30	sw.	27	15	12	4	4.3	100	*	53	1887
Hatteras	11	15	30.02	30.03	+ .01	78.0	+ 0.8	86	30	83	67	1	74	14	72	83	5.32	− 1.1	11	6,833	sw.	34	sw.	4	10	13	8	4.7	92	*	60	1879
Kittyhawk	9	21	29.98	29.99	− .02	78.7	+ 1.3	92	29	84	65	1	73	17	72	82	2.49	− 4.5	11	8,050	sw.	33	n.	25	20	5	6	3.7	102	1888	58	1888
Raleigh	388	9	29.62	30.03	− .02	77.4	+ 1.8	94	10	86	60	3	68	26	68	80	3.99	− 4.0	16	3,168	sw.	24	nw.	20	13	11	7	4.7	96	1888	52	*
Wilmington	78	25	29.95	30.03	+ .01	78.9	+ 1.1	94	19	87	65	3	71	22	72	84	6.52	− 1.1	15	4,415	s.	35	n.	13	14	9	8	4.6	99	1878	56	1887
Charleston	52	25	30.01	30.06	+ .04	82.0	+ 2.2	98	19	88	71	4	76	20	73	79	5.08	− 2.2	13	4,975	sw.	27	e.	1	4	22	5	5.5	98	1895	62	1879
Columbia	.....	9	.....	.....	.....	79.7	+ 1.1	98	12	90	64	2	69	26	.....	.....	9.57	+ 3.8	15	.....	sw.	.....	.....	...	10	11	10	....	100	1894	56	*
Augusta	180	24	29.83	30.02	+ .02	80.5	+ 0.5	95	*	89	67	3	72	23	71	81	8.45	+ 3.7	14	3,388	se.	26	w.	27	11	13	7	4.9	105	1878	58	1888
Savannah	98	25	29.94	30.04	+ .01	82.2	+ 2.4	98	19	91	70	4	74	25	74	82	9.68	+ 2.2	14	4,503	sw.	26	ne.	6	11	15	5	4.3	100	1878	58	*
Jacksonville	43	24	29.99	30.04	+ .02	82.9	+ 1.4	97	20	92	70	4	74	22	73	82	2.54	− 4.1	16	4,817	sw.	34	s.	17	4	26	1	5.2	100	1874	64	1890
Florida Peninsula.						81.8	− 0.2										5.43	− 0.6														
Jupiter	28	8	30.02	30.05	− .00	81.4	− 0.3	93	18	87	71	9	76	16	74	80	3.86	− 2.4	20	5,498	s.	26	e.	8	8	20	3	5.1	93	*	68	*
Key West	22	25	30.03	30.05	+ .04	83.0	− 1.1	90	23	88	70	2	78	17	74	74	4.92	+ 0.1	14	5,748	e.	26	ne.	24	6	20	5	5.5	100	1886	68	1894
Tampa	36	6	30.01	30.05	.....	81.7	+ 0.2	95	20	89	68	22	74	32	74	81	8.88	− 0.9	17	3,752	e.	26	se.	15	18	13	17	7.4	95	1895	67	1890
Titusville	44	9	30.02	30.06	− .01	81.2	− 0.2	93	1	88	70	7	74	19	75	83	4.06	+ 0.6	14	6,828	se.	34	e.	10	9	22	0	4.2	96	1891	67	1889
East Gulf States.						80.2	− 0.3										6.73	+ 1.2														
Atlanta	1,131	17	28.86	30.02	− .02	77.1	+ 0.6	92	8	85	60	2	69	26	68	82	8.55	+ 4.0	19	5,177	nw.	30	w.	11	8	16	7	5.3	96	*	55	1887
Pensacola	56	16	29.95	30.01	− .00	80.8	− 0.1	93	30	87	71	28	75	18	74	81	7.48	− 1.3	15	5,861	sw.	48	s.	16	11	10	10	5.3	96	1886	62	1891
Mobile	57	25	29.97	30.03	− .02	80.8	+ 0.3	94	1	88	71	3	74	20	74	84	8.68	+ 1.9	13	4,436	w.	30	se.	27	2	17	12	6.9	100	1874	57	1891
Montgomery	221	23	29.78	30.01	.00	80.9	+ 1.1	96	19	90	67	11	72	25	72	82	4.50	− 0.7	15	3,461	se.	31	sw.	21	3	15	13	6.5	103	1874	58	1891
Meridian	358	6	29.63	30.00	− .02	79.7	+ 1.9	94	19	89	65	28	70	25	72	84	4.88	+ 1.3	12	2,754	sw.	24	w.	11	2	22	7	6.8	96	1891	58	1891
Vicksburg	254	24	29.72	29.98	− .04	80.0	− 0.7	93	15	88	67	15	72	26	72	84	3.77	− 0.1	18	3,416	e.	37	e.	15	13	12	6	4.4	100	1878	54	1891
New Orleans	54	25	29.95	30.01	+ .01	81.6	+ 0.1	92	26	88	70	*	75	21	73	81	6.79	− 0.6	19	4,450	s.	30	nw.	16	17	11	3	3.7	96	*	54	1891
Port Eads	.....	9	.....	.....	.....	80.7	− 0.9	90	*	87	70	*	75	15	74	78	9.13	+ 2.0	17	6,432	sw.	.....	.....	...	1	14	16	7.8	....	.....	.....	.....
West Gulf States.						81.2	+ 0.2										2.69	− 0.9														
Shreveport	249	24	29.71	29.97	− .03	82.2	0.0	96	18	92	69	4	73	24	72	78	1.48	− 0.6	8	3,574	se.	24	n.	20	11	12	8	4.9	105	1881	54	1891
Fort Smith	481	14	29.46	29.95	− .02	78.4	− 0.3	96	19	89	63	7	68	27	71	81	4.98	+ 1.1	13	3,535	e.	24	n.	8	13	14	4	4.3	104	*	45	1891
Little Rock	302	17	29.67	29.98	− .02	79.6	+ 0.1	95	18	89	65	1	70	24	69	77	3.96	− 0.1	9	3,543	sw.	27	nw.	30	14	14	3	3.9	102	1881	52	1891
Corpus Christi	20	9	29.94	29.96	− .04	82.0	+ 0.5	93	2	87	73	2	77	20	76	84	1.17	− 2.4	4	10,239	se.	44	e.	30	12	13	6	4.5	94	1889	65	1891
Galveston	42	25	29.96	30.00	+ .01	83.0	+ 0.2	94	14	88	71	29	79	15	76	83	4.51	− 1.0	7	6,816	s.	33	se.	29	25	2	4	2.8	98	1874	68	1891
Palestine	510	14	29.46	29.99	− .02	82.3	− 1.1	98	11	93	65	5	72	30	71	78	0.06	− 2.4	3	3,677	s.	20	se.	18	6	21	4	5.4	100	1887	54	1891
San Antonio†	704	17	29.23	29.95	− .03	84.5	+ 2.3	100	3	96	69	31	73	30	76	83	1.90	− 1.8	5	5,695	se.	35	n.	5	8	15	8	5.5	108	1877	57	1891
Ohio Val. & Tenn.						76.9	+ 2.6										2.25	− 1.6														
Chattanooga	762	17	29.24	30.03	− .00	77.4	+ 0.9	92	18	86	59	2	68	25	68	82	4.40	+ 0.2	14	3,374	w.	31	w.	26	7	16	8	5.5	100	1881	54	1891
Knoxville	980	25	29.01	30.02	− .02	76.8	+ 2.1	91	18	87	55	2	67	27	68	80	1.89	− 2.4	9	2,940	sw.	24	sw.	27	15	9	7	4.5	100	1881	50	1879
Memphis	399	25	29.57	29.99	− .02	80.0	+ 1.5	95	19	89	62	2	71	22	69	75	0.64	− 3.2	6	5,098	sw.	34	w.	31	21	6	4	2.9	102	1881	53	1891
Nashville	545	25	29.43	29.99	− .01	79.0	+ 2.5	95	18	89	58	1	69	29	66	71	1.40	− 2.2	7	3,728	sw.	36	nw.	31	17	12	2	3.3	104	1874	51	1891
Lexington	989	10	29.95	29.97	− .05	75.8	+ 2.9	93	18	86	49	22	62	29	66	71	1.56	− 2.6	10	6,483	sw.	46	sw.	24	12	10	9	5.2	99	1888	51	1890
Louisville	525	24	29.43	29.98	− .03	77.6	+ 2.1	96	18	88	53	21	66	27	63	69	1.35	− 2.4	8	4,453	s.	33	se.	9	9	18	4	4.7	105	1881	50	1891
Indianapolis	766	25	29.18	29.97	− .06	76.2	+ 3.9	100	16	88	53	1	64	34	60	63	1.91	− 1.6	8	3,448	sw.	28	nw.	3	14	11	6	4.5	101	1881	46	1890
Cincinnati	628	25	29.32	29.97	− .05	77.2	+ 2.7	96	18	87	54	21	67	31	58	57	3.29	− 0.8	8	4,593	sw.	38	nw.	29	16	11	4	3.9	101	1881	51	1891
Columbus	894	18	29.11	29.96	− .05	75.6	+ 4.1	96	9	88	52	21	64	34	58	60	2.10	− 1.3	11	4,074	sw.	25	nw.	24	8	17	6	5.2	98	1881	42	1887
Pittsburg	842	25	29.10	29.98	− .04	74.5	+ 2.5	95	10	85	52	22	64	33	60	67	4.29	+ 0.9	11	3,809	nw.	31	ne.	24	12	13	6	4.5	100	1881	45	1890
Parkersburg	638	8	29.32	29.99	− .06	76.2	+ 3.5	96	10	88	49	2	65	36	62	66	1.88	− 2.1	11	3,368	s.	38	w.	24	7	14	10	5.9	96	1895	45	1890
Lower Lake Region.						70.4	+ 2.0										3.32	+ 0.3														
Buffalo	690	25	29.21	29.94	− .05	69.0	+ 1.8	87	16	76	48	22	62	28	57	68	2.86	− 0.3	9	5,919	w.	41	nw.	6	6	20	5	5.5	94	1887	44	1880
Oswego	335	25	29.56	29.92	− .08	67.4	+ 0.4	88	17	74	46	22	60	27	58	75	3.38	+ 0.9	13	6,110	w.	32	sw.	6	14	4	13	4.6	96	1883	44	1880
Rochester	523	24	29.40	29.95	− .05	69.4	+ 1.9	91	17	79	46	22	60	31	57	70	3.40	+ 0.4	16	4,785	sw.	36	w.	17	14	11	6	4.4	97	1893	43	1884
Erie	714	23	29.21	29.95	− .05	70.0	+ 1.5	90	17	78	49	22	62	29	59	70	3.30	0.0	10	5,926	s.	40	w.	28	9	14	8	5.3	94	1887	47	1887
Cleveland	740	25	29.18	29.95	− .06	70.8	+ 2.3	91	17	79	48	22	63	35	59	69	4.59	+ 1.4	13	7,178	se.	52	w.	28	18	6	7	4.3	99	1881	46	1890
Sandusky	629	19	29.29	29.95	− .06	72.4	+ 2.9	93	17	81	52	22	65	34	59	67	3.32	− 0.1	12	5,181	sw.	36	n.	28	13	10	8	4.5	98	*	48	*
Toledo	674	25	29.24	29.94	− .06	72.8	+ 2.3	93	17	82	52	1	62	33	58	66	3.75	+ 0.9	9	5,847	nw.	32	nw.	6	16	9	6	3.9	97	1887	44	1888
Detroit	734	25	29.18	29.93	− .06	72.4	+ 2.9	93	17	82	52	1	62	36	58	67	1.97	− 1.0	8	6,130	sw.	29	w.	28	16	14	1	3.5	99	1881	44	1875
Upper Lake Region.						71.2	+ 2.5	92	10	81	51	1	62	26	58	67	2.24	− 0.2														
Alpena	609	23	29.25	29.90	− .09	66.9	+ 1.8										3.10	− 0.3	13	5,564	nw.	27	nw.	31	12	11	8	5.0	93	1887	39	*
Grand Haven	628	25	29.26	29.92	− .07	63.1	+ 0.6	87	14	72	40	21	54	32	54	77	2.49	− 0.5	9	5,517	sw.	28	nw.	31	13	15	3	4.1	92	1881	42	1893
Marquette	734	25	29.11	29.88	− .11	68.4	+ 2.9	88	16	77	47	21	60	28	58	73	1.70	− 1.4	16	7,112	nw.	43	sw.	22	7	19	5	5.5	98	1886	42	1893
Port Huron	639	22	29.27	29.93	− .04	63.8	+ 2.3	87	16	72	45	21	56	30	54	76	3.15	+ 0.6	9	6,425	s.	46	sw.	28	15	11	5	3.8	99	1891	33	1885
Sault Ste. Marie	642	8	29.22	29.90	− .09	68.8	+ 2.8	92	10	79	47	20	58	31	57	73	1.34	− 1.4	14	5,840	nw.	34	nw.	31	9	9	13	6.1	90	1893	41	1888
Chicago	824	25	29.08	29.94	− .05	60.4	− 1.4	87	26	70	40	20	51	31	53	82	6.49	+ 3.5	8	9,855	sw.	45	s.	23	18	11	2	3.3	98	*	38	1890
Milwaukee	673	25	29.23	29.93	− .07	72.4	+ 1.4	93	14	79	58	20	66	26	57	62	2.83	− 0.8	10	6,272	sw.	34	sw.	22	11	13	7	4.7	98	*	47	*
Green Bay	617	9	29.27	29.92	− .09	71.6	+ 3.5	96	9	81	54	1	63	36	56	64	3.71	+ 0.6	14	4,736	s.	30	sw.	23	5	16	10	6.1	98	1874	42	1875
Duluth	702	25	29.18	29.87	− .09	68.4	+ 2.0	93	9	79	46	21	58	36	56	69	1.67	− 1.9	12	7,105	nw.	36	sw.	25	10	16	5	5.0	95	1888	40	1888
North Dakota.						65.4	+ 2.1	85	16	73	46	31	58	24	54	69	1.35	− 0.8														
Moorhead	935	15	28.90	29.90	− .04	65.1	− 0.7										1.49	− 1.3	10	7,014	n.	38	se.	21	12	13	6	4.4	100	1886	32	*
St. Vincent	794	15	29.08	29.87	− .05	65.0	+ 0.5	91	13	78	35	31	52	40	51	66	2.61	+ 0.3	9	5,316	nw.	38	n.	22	15	12	4	3.8	103	1886	27	1885
Bismarck	1,681	21	28.17	29.91	− .01	67.4	− 0.5	98	15	84	32	31	51	48	47	52	0.40	− 1.8	5	6,687	nw.	34	nw.	4	24	3	3	3.1	105	1876	32	1895
Williston	1,875	17	27.94	29.88	− .09	65.6	− 1.9	96	15	80	34	31	51	47	44	54	1.03	− 0.3	6	6,686	nw.	48	nw.	8	11	16	4	4.7	107	1882	34	*
Upper Miss. Valley.						74.2	+ 2.4										2.55	− 0.7														
Minneapolis	.....	6	.....	.....	.....	70.0	+ 1.5	94	13	81	45	31	59	36	.....	.....	1.92	− 1.5	12	.....	nw.	.....	.....	...	16	13	2	....	96	1894	42	1891
St. Paul	850	25	29.03	29.92	− .05	69.8	+ 1.3	94	13	81	45	31	58	36	55	66	2.59	− 0.9	11	4,826	nw.	38	nw.	24	14	13	4	3.8	98	1880	40	1891
La Crosse	720	23	29.17	29.93	− .05	71.6	+ 3.1	95	9	84	50	21	60	36	58	70	2.66	− 1.1	8	4,389	s.	22	sw.	22	12	16	3	4.1	101	1894	40	1891
Davenport	613	24	29.28	29.92	− .06	75.0	+ 3.7	94	13	86	55	19	64	28	59	64	4.79	+ 1.1	4	4,935	sw.	26	sw.	5	11	15	5	4.7	98	1894	44	1884
Des Moines	869	18	29.04	29.95	− .04	73.8	+ 1.8	95	19	85	51	20	62	26	59	66	3.57	+ 0.1	10	5,017	sw.	39	s.	6	19	7	5	3.5	103	1881	40	1891

TABLE I.—*Climatological data for Weather Bureau Stations, August*, 1895—Continued.

Stations.	Elevation above sea-level, feet.	Length of record, years	Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.								Humidity and precipitation.					Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Monthly temperature data since opening station.			
			Mean pressure, 8 a.m. and 8 p.m. +2.	Mean reduced.	Departure from normal.	Mean max. and min. +2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.							
																												Absolute maximum.	Year.	Absolute minimum.	Year.
Up. Miss. Val.—Con																															
Dubuque	.....	23	.....	.....	.....	74.4	+ 4.1	97	13	86	53	1	63	34	.....	.....	1.75	— 1.9	7	.....	nw.	....	.....	...	20	6	5	....	99	*	41	1875
Keokuk	613	25	29.30	29.94	— .05	75.7	+ 2.4	94	16	86	58	21	66	30	62	66	2.68	— 0.3	5	4,409	sw.	24	sw.	23	16	9	6	3.9	102	1873	47	1875
Cairo	359	25	29.59	29.96	— .03	78.1	+ 1.6	93	18	87	60	1	69	32	68	75	0.71	— 2.1	6	4,086	s.	24	sw.	30	11	19	1	4.3	103	1881	52	1891
Springfield, Ill	644	17	29.30	29.96	— .06	75.3	+ 2.6	93	17	85	56	22	65	29	62	68	2.76	+ 0.4	9	5,150	sw	27	w.	23	11	16	4	4.2	100	1881	48	1891
Hannibal	534	....	29.39	29.94	.....	74.8	.....	93	15	84	54	21	65	32	65	75	4.86	.....	11	5,144	sw.	32	sw.	23	15	13	3	4.1	....	.....	.....	.....
St. Louis	571	25	29.39	29.98	— .01	77.9	+ 1.6	94	27	86	58	21	69	25	65	69	2.08	— 0.5	6	6,076	s.	37	sw.	10	15	12	4	4.0	106	1881	52	1887
Missouri Valley.						74.0	+ 1.1										4.21	+ 0.6													
Columbia	.....	6	.....	.....	.....	75.6	+ 1.1	97	17	87	52	21	64	35	.....	.....	2.30	— 0.6	9	3,705	se.	22	ne.	19	7	12	12	6.0	105	1894	42	1891
Kansas City	963	8	28.98	29.97	— .02	75.3	+ 0.6	93	18	84	59	*	67	23	66	78	7.21	+ 2.8	13	5,223	s.	40	nw.	4	12	12	7	5.0	100	1894	46	1891
Springfield, Mo	1,394	9	28.61	29.97	— .02	74.8	— 0.5	91	18	84	59	*	66	23	67	81	4.57	+ 0.1	9	5,085	se.	36	sw.	9	10	16	5	4.4	97	*	44	1891
Topeka	.....	9	.....	.....	.....	75.8	+ 2.1	95	18	86	56	21	66	28	.....	.....	6.20	+ 1.0	12	.....	se.	.....	.....	...	14	10	7	....	104	1887	40	1891
Omaha	1,123	25	28.79	29.94	— .05	74.4	+ 1.9	96	8	84	56	31	65	28	62	72	7.18	+ 3.8	13	5,386	se.	30	ne.	18	13	10	8	4.8	105	1874	44	*
Sioux City	1,165	7	28.70	29.91	— .06	72.8	+ 1.2	98	8	84	47	20	61	37	58	66	1.54	— 1.8	11	6,828	s.	46	n.	18	15	9	7	4.6	102	1894	40	1891
Pierre	1,470	21	28.36	29.87	— .07	73.3	+ 1.5	106	21	87	46	31	60	40	54	58	1.88	0.0	6	6,473	n.	44	e.	7	13	13	5	4.8	108	1873	39	1893
Huron	1,310	15	28.53	29.89	— .06	70.0	+ 1.0	100	13	86	37	31	54	46	52	62	2.81	— 0.3	8	9,429	se.	65	nw.	7	16	12	3	3.7	102	1890	33	1886
Northern Slope.						67.3	— 0.9										0.97	— 0.5													
Havre	2,477	16	27.34	29.88	— .03	64.2	— 2.1	96	3	81	34	27	48	51	39	47	0.04	— 1.6	1	5,490	w.	30	ne.	29	22	7	2	2.6	103	1893	34	*
Miles City	2,374	18	27.45	29.86	.....	69.2	— 2.5	101	12	84	42	10	54	48	44	46	0.39	— 0.7	5	4,154	w.	33	nw.	21	18	11	2	3.8	109	1882	37	1882
Helena	4,108	16	25.87	29.93	+ .05	66.1	— 0.1	91	3	79	40	9	53	38	36	39	0.14	— 0.6	4	5,729	sw.	42	sw.	6	22	7	2	2.4	98	1893	34	1880
Rapid City	3,260	10	26.02	29.88	— .03	69.9	— 0.3	98	15	83	48	14	57	48	44	46	0.69	— 0.9	5	7,039	n.	38	n.	21	11	16	4	4.6	104	1881	42	*
Cheyenne	6,105	25	24.12	29.91	.00	65.2	+ 0.2	90	17	78	46	6	52	38	46	57	1.69	+ 0.1	8	6,431	nw.	38	nw.	8	11	15	5	4.7	96	1882	30	1892
Lander	5,377	9	24.70	29.94	.00	64.8	— 2.3	89	20	81	39	11	48	49	41	50	1.04	+ 0.4	4	2,502	sw.	34	nw.	25	12	14	5	4.1	100	1882	33	*
North Platte	2,826	21	27.08	29.93	— .02	71.7	+ 0.7	99	16	84	48	29	59	37	57	67	2.13	— 0.3	7	6,362	s.	34	nw.	1	15	15	1	3.9	103	1878	40	1893
Middle Slope.						74.2	+ 0.2										3.56	+ 0.6													
Denver	5,287	24	24.84	29.95	+ .06	70.2	+ 0.7	94	16	83	51	*	57	40	46	52	0.76	— 0.8	8	4,717	s.	33	nw.	6	10	17	4	4.4	105	1878	44	1876
Pueblo	4,734	8	25.33	29.95	.....	71.9	— 0.4	96	17	86	51	25	58	42	50	57	1.11	— 1.0	13	4,704	se.	44	nw.	21	14	14	3	3.9	101	1892	45	1892
Concordia	1,410	11	28.49	29.93	— .05	76.0	+ 2.3	100	27	87	58	21	65	33	63	72	4.98	+ 0.9	8	4,743	e.	34	s.	30	17	8	6	3.8	102	*	41	1891
Dodge City	2,504	21	27.38	29.90	— .03	75.6	+ 0.3	98	18	88	57	19	64	38	62	70	2.42	— 0.7	6	7,611	se.	43	nw.	4	18	11	2	3.5	104	1888	46	1891
Wichita	1,351	8	28.53	29.91	— .03	77.1	— 0.7	95	17	87	59	1	67	31	68	80	7.67	+ 4.0	8	4,709	s.	30	n.	11	16	4	11	4.4	102	1890	45	1893
Oklahoma	1,239	....	28.70	29.97	.....	79.1	.....	97	14	89	64	10	69	26	68	76	4.44	+ 1.3	12	5,051	s.	50	se.	10	20	10	1	3.0	....	.....	.....	.....
Southern Slope.																															
Abilene	1,749	10	28.18	29.95	— .02	81.2	+ 0.5	100	14	92	65	4	70	29	64	64	1.27	— 0.3	5	5,366	se.	25	se.	30	9	18	4	4.8	103	1888	55	*
Amarillo	3,691	....	26.30	29.94	.....	74.2	.....	91	13	85	59	29	64	26	59	68	3.87	.....	10	10,416	s.	44	n.	4	11	12	8	4.8	....	.....	.....	.....
Southern Plateau.						73.6	— 0.9										1.33	+ 0.2													
El Paso	3,767	18	26.19	29.90	+ .01	78.7	— 1.8	95	13	90	63	7	67	29	56	55	2.01	0.0	12	6,648	e.	55	ne.	30	14	16	1	3.8	110	1884	52	1880
Santa Fe	6,998	22	23.39	29.97	.00	66.2	— 0.3	84	17	77	50	25	56	27	46	57	3.64	+ 1.0	20	4,174	se.	27	sw.	10	8	23	0	4.6	97	1878	40	1888
Phœnix‡	1,106	....	28.64	29.76	.....	88.6	.....	110	16	101	65	29	76	37	59	44	0.27	.....	4	2,681	e.	30	n.	20	6	18	2	4.6	116	1883	49	1885
Yuma	141	30	29.62	29.76	— .02	90.9	— 0.7	114	5	104	64	30	78	38	62	46	T.	— 0.4	0	5,599	sw.	32	se.	6	27	3	1	1.2	115	1879	60	1887
Independence	3,884	....	25.97	29.85	.....	76.0	.....	102	5	92	46	30	60	37	35	29	0.04	.....	1	5,748	se.	32	n.	28	22	5	4	2.4	....	.....	.....	.....
Middle Plateau.						69.9	— 0.7										0.05	— 0.3													
Carson City	4,720	8	25.30	29.93	.....	65.2	— 2.2	95	5	83	34	30	48	44	34	36	0.03	— 0.2	3	.....	sw.	....	.....	...	28	1	2	1.2	95	1895	34	1895
Winnemucca	4,340	17	25.65	29.88	+ .02	69.8	+ 0.1	98	5	86	43	29	54	42	33	22	0.10	0.0	1	6,333	sw.	36	sw.	25	22	9	0	1.8	102	1882	26	1887
Salt Lake City	4,345	22	25.62	29.86	— .02	74.8	— 0.1	97	6	88	52	27	61	36	41	33	0.02	— 0.8	1	4,134	se.	36	nw.	22	14	14	3	4.8	101	1875	44	1880
Northern Plateau.						68.2	— 1.0										0.10	— 0.1													
Baker City	3,430	7	26.45	29.89	— .01	65.5	— 0.8	94	2	82	39	14	49	49	36	40	0.39	+ 0.2	3	3,977	nw.	30	se.	28	21	7	3	2.3	99	1893	36	1890
Idaho Falls	4,742	6	25.25	29.90	.....	67.1	— 0.5	94	15	86	36	10	48	50	33	38	0.11	— 0.3	2	5,708	s.	30	s.	30	19	9	3	2.7	101	1881	33	1893
Spokane	1,930	15	27.96	29.95	+ .04	67.5	— 0.8	95	2	83	42	14	52	44	32	36	0.03	— 0.3	1	3,904	sw.	39	se.	29	12	16	3	3.7	102	1888	38	*
Walla Walla	1,018	10	28.89	29.94	+ .02	72.5	— 1.9	102	2	87	47	27	58	40	43	38	0.23	— 0.1	2	3,825	s.	26	s.	29	21	10	0	3.4	108	1894	44	1887
N. Pac. Coast Reg.						60.2	— 0.7										0.42	— 0.8													
East Clallam	.....	.....	.....	.....	.....	53.6	.....	71	*	61	38	13	46	30	.....	.....	0.18	.....	2	.....	w	.....	.....	...	21	2	8	.....	.....	.....	.....	.....
Fort Canby	179	12	29.91	30.10	+ .06	58.0	— 0.9	84	28	64	48	10	52	36	53	89	0.25	— 1.0	1	6,391	n.	42	se.	29	13	11	7	4.5	90	1884	48	*
Neah Bay	.....	11	.....	.....	.....	57.4	— 1.6	77	5	67	40	14	48	34	.....	.....	1.37	— 1.4	4	.....	w.	.....	.....	...	19	4	8	....	82	1894	40	1895
Olympia	.....	19	.....	.....	.....	62.4	+ 0.8	87	28	80	38	26	45	42	.....	.....	T.	— 0.7	0	.....	ne.	.....	.....	...	22	8	1	....	94	1893	38	1895
Port Angeles	29	11	30.02	30.05	+ .04	56.2	— 0.6	88	28	65	38	13	48	33	48	76	0.44	— 0.4	2	4,836	w.	36	w.	6	26	2	3	2.0	88	1895	38	1895
Port Crescent	.....	.....	.....	.....	.....	56.4	.....	89	28	68	32	26	44	44	.....	.....	0.47	.....	2	.....	w.	.....	.....	...	22	8	1	....	.....	.....	.....	.....
Pysht§	.....	.....	.....	.....	.....	59.0	.....	79	5	71	42	*	47	30	.....	.....	0.00	.....	0	.....	w.	.....	.....	...	14	2	2	....	.....	.....	.....	.....
Seattle	119	....	29.91	30.04	.....	62.0	.....	84	5	72	47	8	52	29	49	68	0.21	.....	2	2,507	nw.	18	n.	5	25	5	1	3.0	....	.....	.....	.....
Tatoosh Island	86	11	29.99	30.09	+ .05	54.6	— 1.4	70	29	59	45	21	50	18	51	88	1.31	— 1.5	7	5,492	sw.	29	s.	29	14	3	14	5.4	80	1894	40	1890
Astoria	.....	11	.....	.....	.....	61.4	— 0.2	84	*	70	45	13	53	28	.....	.....	0.09	— 1.2	1	.....	nw.	.....	.....	...	25	5	1	....	88	1894	45	1895
Portland, Oreg	157	24	29.84	30.01	— .01	65.4	— 0.6	91	5	77	44	26	54	36	50	63	0.37	— 0.2	1	6,176	nw.	27	nw.	5	27	3	1	1.2	97	1891	43	1876
Roseburg	523	18	29.40	29.96	— .06	65.8	— 1.0	96	5	80	45	27	51	42	48	59	0.01	— 0.3	1	2,898	n.	18	nw.	7	29	1	1	0.7	104	1894	40	1892
Mid. Pac. C'st Reg.						64.2	— 0.9										0.02	0.0													
Eureka	64	9	29.92	29.95	— .07	54.0	— 1.9	66	5	59	45	27	49	16	51	92	0.11	0.0	2	3,626	nw.	30	nw.	26	11	10	10	5.1	79	1894	45	1895
Red Bluff	334	19	29.50	29.84	— .01	81.2	+ 0.2	107	4	96	55	30	67	38	45	33	T.	0.0	0	3,441	se.	24	n.	8	26	3	2	1.5	114	1891	52	1881
Sacramento	71	19	29.78	29.85	— .02	72.6	— 1.0	99	4	88	51	27	57	39	54	60	T.	0.0	0	6,112	sw.	20	s.	28	23	4	4	2.3	108	*	48	1887
San Francisco	153	25	29.77	29.93	— .01	58.4	— 1.9	80	1	64	50	19	53	26	52	87	0.00	0.0	0	10,239	sw.	36	sw.	3	14	16	1	4.1	92	*	47	1893
Point Reyes Light‖	.....	7	.....	.....	.....	54.9	+ 0.3	72	1	62	45	*	47	25	.....	.....	T.	— 0.2	0	.....	nw.	.....	.....	...	4	7	17	....	84	1894	41	*
S. Pac. Coast Reg.						72.2	— 2.3										T.	— 0.1													
Fresno	332	8	29.47	29.81	— .08	80.6	— 0.6	110	5	98	51	27	64	41	42	33	T.	0.0	0	4,316	nw.	19	nw.	25	28	2	1	1.0	112	*	51	1895
Los Angeles	330	19	29.57	29.92	+ .01	68.8	— 3.7	88	15	80	51	30	57	33	58	80	T.	0.0	0	2,094	w.	12	w.	2	6	25	0	3.5	106	1885	50	1883
San Diego	69	24	29.84	29.92	.00	67.1	— 2.6	78	16	72	54	29	62	17	59	79	0.00	— 0.2	0	4,026	w.	16	w.	24	22	8	1	3.1	92	1884	54	*
San Luis Obispo	201	....	29.73	29.94	.....	65.6	.....	90	1	78	44	28	53	44	52	72	T.	.....	0	2,851	nw.	14	w.	28	22	6	3	3.7	....	.....	.....	.....

NOTE.—The data at stations having no departures are not used in computing the district averages. Letters of the alphabet denote number of days missing from the record.

* Two or more directions, dates, or years. † Received too late to be considered in departures, etc. ‡ Record for 26 days only. § All values except precipitation for 18 days only. ‖ All values for 28 days only.

TABLE II.—*Meteorological record of voluntary and other cooperating observers, August, 1895.*

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Alabama.	°	°	°	*Ins.*	*Ins.*
Alco	99	68	81.2	.....	
Ashville†	98	60	82.0	7.09	
Bermuda†	93	68	79.4	4.24	
Birmingham†	95[4]	72[4]	83.8[4]	3.19	
Brewton†	100	66	81.0	.....	
Carrollton*†[1]	88	68	79.6	2.44	
Citronelle†	89	72	80.2	6.61	
Claiborne†	.....	.....	.....	0.16	
Clanton†	92	67	79.0	2.63	
Collirene*[1]	94	70	82.7	2.40	
Cordova†	.....	.....	.....	5.05	
Daphne†	98	66	80.5	13.85	
Decatur†	95	53	78.0	3.60	
Demopolis†	.....	.....	.....	4.30	
Elba†	.....	.....	.....	5.20	
Eufaula *a*†	95	72	82.0	6.17	
Eufaula *c*†	.....	.....	.....	8.08	
Evergreen†	96	62	80.7	9.42	
Florence *a*†	.....	.....	.....	4.15	
Florence *b*†	92	57	78.4	3.35	
Fort Deposit†	94	70	81.0	7.22	
Gadsden†	95	55	78.0	6.16	
Goodwater†	100	66	80.4	6.13	
Greensboro†	92	67	79.9	5.64	
Healing Springs†	94	62	79.0	5.46	
Highland Home†	92	69	79.0	10.81	
Jasper†	96	55	77.5	3.48	
Livingston†	98	67°	81.5	3.00	
Lock No. 4	.....	.....	.....	5.12	
Madison Station†	95	61	78.6	3.56	
Maple Grove†	96	45	78.2	6.20	
Marion†	94	69	81.2	1.92	
Mount Willing†	94	67	79.4	5.40	
Newbern†	92	71	80.7	6.11	
Newburg†	96	52	78.0	4.66	
Newton†	.....	.....	.....	7.39	
Oneonto	.....	.....	.....	3.70	
Opelika†	96	68	80.8	3.56	
Oxanna*†[1]	92	56	76.3	5.10	
Pine Apple†	96	66	80.8	5.31	
Pushmataha†	94	69	81.0	4.46	
Rock Mills†	92	64	78.6	8.29	
Scottsboro†	95	55	77.8	7.37	
Selma†	.....	.....	.....	1.59	
Sturdevant†	.....	.....	.....	2.62	
Thomasville†	92	68	80.0	7.06	
Tuscaloosa†	98	63	81.4	1.95	
Tuscumbia†	96	60	78.4	1.21	
Union†	95	62	79.4	3.29	
Union Springs†	96	70	81.3	7.40	
Uniontown†	94	70	81.6	2.68	
Valley Head†	98	51	76.6	7.15	
Wetumpka	.....	.....	.....	4.87	
Wilsonville†	.....	.....	.....	4.77	
Alaska.					
Coal Harbor†	64	40	51.4	3.17	
Killisnoo†	63	42	51.8	6.95	
Arizona.					
Arizona Canal Co. Dam	112	60	84.3	0.06	
Benson*§	100	62	80.1	1.20	
Bisbee†	91	60	78.0	4.70	
Buckeye†	108	58	86.0	1.00	
Calabasas†	97	54	75.7	6.77	
Casa Grande*§	108	75	88.2	1.30	
Dragoon	.....	.....	.....	3.63	
Dragoon Summit*§	99	60	81.6	4.00	
Dudleyville†	106	61	81.9	3.80	
Eagle Pass*§	94	60	74.0	3.95	
Farleys Camp†	106	64	85.3	4.35	
Flagstaff	89	43	66.6	.....	
Fort Apache	94	52	70.9	5.44	
Fort Grant†	98	57	76.7	4.02	
Fort Huachuca	96	56	73.6	2.80	
Gila Bend*§	114	76	94.9	1.40	
Gisela†	104	58	81.6	1.75	
Holbrook†	96	52	74.6	0.70	
Keams Canyon†	95	43	70.7	1.59	
Maricopa*§	117	72	93.4	0.85	
Mount Huachuca†	90	57	73.9	6.84	
Natural Bridge†	.....	.....	.....	3.38	
Navajo*†§	.....	59	69.4	2.00	
Oracle†	97	62	77.5	3.12	
Oro	.....	.....	.....	2.64	
Oro Blanco	97	66	79.0	5.65	
Pantano*§	100	67	82.8	5.83	
Payson	.....	.....	.....	2.12	
Peoria†	110	67	90.7	0.10	
Pinal Ranch	.....	.....	.....	5.88	
Reymert	109	60[7]	83.5[7]	2.65	
St. Helena Ranch	94	64	78.6	6.43	
San Carlos†	108[7]	65[8]	84.6[7]	2.39	
San Simon*§	104	72	86.9	0.10	
Show Low	.....	.....	.....	3.11	
Signal†	113	59	90.3	T.	
Sulphur Spring Valley†	.....	.....	.....	2.48	
Texas Hill*§	117	76	97.0	0.00	
Tucson *a*	106	67	87.2	5.35	
Arizona—Cont'd.					
Tucson *c*†	106	61	82.8	4.48	
Walnut Ranch*†[1]	91	60	71.1	3.01	
Wells*[1]	114	65	93.9	0.64	
Whipple Barracks†	100	45	73.4	3.53	
Wilgus†	.....	.....	.....	2.36	
Willcox*§	93	64	79.2	3.06	
Arkansas.					
Arkadelphia†	.....	.....	.....	5.75	
Arkansas City†	.....	.....	.....	1.85	
Bee Branch†	98	61	78.8	2.73	
Blanchard Springs†	95	64	79.7	6.20	
Brinkley†	96	62	80.1	1.27	
Camden *a*†	.....	.....	.....	3.82	
Camden *b*†	97	62	79.4	3.42	
Conway*[1]	91	66	77.4	1.32	
Corning†	98	55	79.0	2.12	
Dallas†	97	61	79.4	1.20	
Dardanelle†	.....	.....	.....	2.00	
Elon†	96	61	80.9	3.43	
Fayetteville†	93	58	77.0	2.86	
Forrest†	96	61	79.7	0.63	
Fulton†	.....	.....	.....	2.62	
Helena *a*†	.....	.....	.....	3.34	
Helena *b*†	102	63	82.8	2.55	
Hot Springs *a*	99	62	80.6	3.40	
Hot Springs *b*	.....	.....	.....	6.09	
Hot Springs (near)	.....	.....	.....	4.44	
Keesees Ferry†	99	56	77.2	2.19	
Kirby†	92	.....	.....	3.70	
La Crosse†	96	56	77.5	2.28	
Lonoke*[1]	95	66	82.5	4.44	
Luna Landing*§	91	72	81.0	2.77	
Madding[2]	.....	.....	83.2	0.93	
Malvern†	100	60	80.2	5.85	
Mossville	89	64	75.8	2.30	
Mount Ida†	97	62	79.8	3.43	
Mount Nebo†	91	57	76.2	2.03	
New Gascony*[1]	94	68	80.7	0.95	
Newport *a*†	.....	.....	.....	1.11	
Newport *b*†	96	60	79.6	0.81	
Newport *c*†	94	58	77.6	1.13	
Osceola†	94	60	79.4	0.73	
Ozark†	97	63	80.4	1.58	
Pine Bluff†	98	63	82.2	1.13	
Pocahontas†	95	60°	78.2°	2.89	
Prescott†	99	61	80.8	4.37	
Rison†	97	60	79.6	2.65	
Russellville†	95	61	79.0	1.73	
Searcy†	94	61	77.8	3.35	
Stuttgart†	95	62	79.5	2.27	
Texarkana†	100	65	83.2	1.12	
Warren†	98	62	81.2	1.97	
Washington†	92	64	79.6	4.30	
Wiggs	.....	.....	.....	2.65	
Winslow†	86	61	75.0	2.39	
Witts Springs	98	58	78.9	1.17	
California.					
Adin	103	38	67.2	0.37	
Ager	106	46	73.6	0.58	
Agnew	90	44	65.5	0.00	
Arlington Heights	97	44	71.2	0.00	
Athlone*§	114	73	87.4	0.00	
Ballast Point L. H	.....	.....	.....	0.00	
Bear Valley†	.....	.....	.....	0.20	
Berkeley	85	51	62.2	0.00	
Bishop†	103	40	73.0	0.01	
Bishop Creek*§	106	60	82.6	0.07	
Boca*§	96	35	57.9	T.	
Bodie†	89	22	56.0	0.26	3.0
Bowmans Dam†	.....	.....	.....	0.37	
Borden*§	113	55	81.3	0.00	
Caliente*§	110	61	84.5	0.00	
Calloway Canal†	.....	.....	.....	0.00	
Cape Mendocino L. H	.....	.....	.....	0.31	
Cedarville†	100	41	68.2	0.54	
Centerville*[1]	99	58	68.0	0.00	
Chino*§	96	51	71.4	0.00	
Chico*§	110	58	82.8	0.00	
Cisco*§	85	35	61.1	.....	
Claremont	92	45	70.4	0.00	
Cloverdale*§	106	49	74.4	0.00	
Colegrove	.....	.....	.....	0.00	
Corning*§	110	60	84.0	0.00	
Coronado	76	60	67.7	.....	
Crescent City†	71	40	55.9	0.05	
Crescent City L. H	.....	.....	.....	0.06	
Davisville *b*	102	49	74.4	0.00	
Delano*§	109	59	84.6	0.00	
Delta*§	108	50	76.0	0.00	
Drytown	107	47	75.0	T.	
Dunnigan*§	102	56	77.6	0.00	
East Brother L. H	.....	.....	.....	0.00	
Edgwood*§	103	45	70.3	0.94	
Edmanton*[1]	94	40	63.1	0.27	
Escondido	95	46	73.4	0.00	
Evergreen	.....	.....	.....	0.00	
Fall Brook*[1]	95	51	68.1	0.00	
California—Cont'd.					
Folsom City *b*†[1]	104	57	77.0	T.	
Fordyce Dam	.....	.....	.....	T.	T.
Fort Bragg†	78	40	56.6	0.02	
Fort Ross	.....	.....	.....	0.00	
Fort Tejon	.....	.....	.....	0.00	
Fremontville*[1]	90	49	66.1	0.00	
Georgetown†	98	48	73.5	0.07	
Glendora	.....	.....	.....	0.00	
Goshen*§	108	53	80.1	0.00	
Grass Valley	.....	.....	.....	0.24	
Greenville†	105	32	64.9	0.48	
Healdsburg*[1]	92	46	62.4	0.00	
Hollister	95	43	64.1	0.00	
Hueneme	.....	.....	.....	0.00	
Humboldt L. H	.....	.....	.....	0.08	
Hydesville†	85	42	58.6	0.17	
Indio*§	116	68	94.3	0.00	
Iowa Hill*[1]	101	54	75.1	0.27	
Jackson	95	46	71.2	T.	
Jolon	.....	.....	.....	0.00	
Julian†	99	36	73.1	0.70	
Keeler*§	106	64	84.2	T.	
Keene*§	102	48	75.9	0.00	
Kennedy Gold Mine	104	48	74.9	0.00	
Kernville	.....	.....	.....	0.00	
King City*§	102	45	63.6	0.00	
Kingsburg*§	110	60	82.3	0.00	
Kono Tayee	98	54	75.8	T.	
Lagrange	.....	.....	.....	0.00	
La Porte*†[1]	88	40	61.1	0.29	
Lemoore *a*§	108	52	80.7	0.00	
Lick Observatory†	91	49	70.4	0.00	
Lime Kiln	112	51	81.4	T.	
Lime Point L. H	.....	.....	.....	0.00	
Lodi	101	51	71.8	T.	
Los Alamos†	.....	.....	.....	0.00	
Los Gatos *b*	94	46	65.7	0.00	
McMullin*[1]	110	50	82.9	0.00	
Malakoff Mine*[1]	94	50	71.5	0.41	
Mammoth Tank*§	117	70	92.3	0.00	
Manzana	106	48	77.8	0.00	
Mare Island L. H	.....	.....	.....	0.00	
Merced*§	106	55	78.5	0.00	
Middletown*†[1]	105	45	72.5	0.00	
Mills College	.....	.....	.....	0.00	
Milton (near)*[1]	108	58	79.1	0.00	
Modesto*§	105	50	75.7	0.00	
Mohave*§	111	57	85.5	0.00	
Mokelumne Hill*§	.....	54	76.0	T.	
Monterey*§	78	50	60.1	0.00	
Mount Frazier	.....	.....	.....	0.00	
Mount Glenwood*[1]	104	57	80.4	0.00	
Mutah Flat	.....	.....	.....	0.00	
Napa *b*	91	50	67.2	0.00	
Needles†	116	66	93.2	T.	
Nevada City†	92	43	67.1	0.29	
Newcastle *a*†	102	50	76.2	0.02	
Newhall*§	104	51	75.0	0.00	
North Berkeley*[1]	78	57	62.8	0.00	
Oakland *a*	84	50	58.7	0.00	
Ogilby*§	122	83	103.5	0.00	
Oleta*[1]	99	50	70.7	T.	
Orangevale†	105	49	75.4	T.	
Orland*§	113	60	84.1	0.00	
Ormonde†	.....	.....	.....	0.16	
Oroville *b*	107	58	80.1	0.00	
Palermo†	110	50	79.7	0.05	
Pasadena	92	48	69.8	0.00	
Paso Robles *b*	102	44	68.7	0.00	
Petaluma*[1]	94	52	65.3	0.00	
Piedras Blancas L. H	.....	.....	.....	0.00	
Pigeon Point L. H	.....	.....	.....	0.00	
Pilot Creek	.....	.....	.....	0.18	
Placerville *b*	98	42	69.4	T.	
Point Ano Nuevo L. H	.....	.....	.....	0.00	
Point Arena L. H	.....	.....	.....	0.00	
Point Bonita L. H	.....	.....	.....	0.00	
Point Conception L. H	.....	.....	.....	0.00	
Point Fermin L. H	.....	.....	.....	0.00	
Point George L. H	.....	.....	.....	0.00	
Point Hueneme L. H	.....	.....	.....	0.00	
Point Lobos	71	50	56.9	0.01	
Point Loma L. H	.....	.....	.....	0.00	
Point Montara L. H	.....	.....	.....	0.00	
Point Pinos L. H	.....	.....	.....	0.00	
Point Reyes L. H	.....	.....	.....	0.00	
Point Sur L. H	.....	.....	.....	0.00	
Pomona (near)	99	46	74.0	0.00	
Portersville*§	110	64	84.0	0.00	
Poway*§	93	58	65.9	T.	
Quincy†	97	38	64.7	0.35	
Ravenna*§	104	52	76.2	0.00	
Redding *b*†	106	57	81.2	T.	
Redlands *a*	.....	.....	.....	0.00	
Reedley (near)*[1]	108	58	82.4	0.00	
Represa	98	52	74.2	T.	
Rio Vista	104	48	71.7	T.	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
California—Cont'd.	°	°	°	*Ins.*	*Ins.*
Riverside†	102	45	75.2	0.00	
Robertsons Mill	.....	.....	.....	0.00	
Roe Island L. H	.....	.....	.....	0.00	
Rosewood	111	46	78.6	T.	
Sacramento	98	47	71.4	T.	
Salinas	.....	.....	.....	0.00	
Salton*‖	117	74	97.9	0.00	
San Bernardino†	100	44	74.0	0.00	
San Jacinto†	103	45	73.7	T.	
San Jose *b*	92	43	64.5	0.00	
San Leandro*[1]	90	58	64.4	0.00	
San Luis L. H	.....	.....	.....	0.00	
San Luis Obispo *a*	.....	.....	.....	0.01	
San Mateo*‖	88	57	63.5	0.00	
San Miguel*‖	106	48	72.8	0.00	
San Miguel Island†	77	48	61.6	0.00	
Santa Ana*‖	92	65	77.3	0.00	
Santa Barbara *a*	78	51	65.0	0.00	
Santa Barbara L. H	.....	.....	.....	0.00	
Santa Clara *a*‖	86	50	65.4	0.00	
Santa Clara *b*	96	44	68.0	0.00	
Santa Cruz *b*†	93	47	62.8	0.00	
Santa Cruz L. H	.....	.....	.....	0.00	
Santa Maria	85[4]	46[4]	66.0[4]	0.00	
Santa Monica*‖	75	60	66.4	0.00	
Santa Paula *b*†	79	46	61.3	0.00	
Santa Rosa*‖	94	50	66.9	0.00	
Saticoy	.....	.....	.....	0.00	
Shasta	.....	.....	.....	T.	
Shasta Springs	93	42	66.0	0.10	
Skye Valley	.....	.....	.....	0.00	
Sneddens Ranch	.....	.....	.....	0.00	
S. E. Farallone L. H	.....	.....	.....	0.00	
Stanford University	92	47	65.7	0.00	
Stockton *a*	100	52	71.7	0.00	
Summerdale†	.....	.....	.....	T.	
Susanville†	100	49	73.8	0.20	
Sutter Creek*[5]	98	42	69.7	0.00	
Tecarte Dam*[4]	106	42	67.6	0.00	
Tehama*‖	106	57	82.7	0.00	
Tejon Ranch	.....	.....	.....	0.00	
Templeton*‖	102	47	68.1	0.00	
Trinidad L. H	.....	.....	.....	0.00	
Truckee*‖	95	34	62.9	0.00	
Tulare *b*	.....	.....	.....	0.00	
Tulare *c*	114	48	80.2	0.00	
Turlock *b*†	112	45	76.2	0.00	
Ukiah†	104	42	70.6	0.00	
Upper Lake	104	45	73.8	T.	
Upper Mattole*[1]	98	44	63.8	0.00	
Vacaville*[1]	104	54	75.5	0.00	
Ventura†	78	50	64.0	T.	
Volcano Springs*‖	124	72	103.4	0.00	
Walnut Creek	103	41	69.1	0.00	
Wenrich Ranch	.....	.....	.....	0.00	
West Point	.....	.....	.....	T.	
Wheatland	106	51	75.0	T.	
Williams*‖	106	57	80.0	0.00	
Willows *b*‖	105	57	81.3	0.08	
Wilmington*‖	81	61	72.7	0.00	
Wire Bridge*[5]	104	54	75.3	0.25	
Yerba Buena L. H	.....	.....	.....	0.00	
Yreka†	106	38	68.8	0.68	
Yuba City*[5]	102	64	78.5	T.	
Colorado.					
Alma†	71	32	50.6	3.42	
Antlers†	98	44	71.2	1.48	
Arkins	.....	.....	.....	0.57	
Boxelder	.....	.....	.....	1.98	
Breckenridge†	86	33	58.2	3.62	
Byers*[1]	96	40	64.0	0.00	
Canyon†	96	51	72.8	1.71	
Capps	.....	.....	.....	0.25	
Castle Rock†	85	40	64.3	2.43	
Climax†	66	33	49.0	4.75	
Collbran	.....	.....	.....	1.86	
Colorado Springs†	89	45	65.4	1.89	
Cope†[5]	100	52	74.6	0.65	
Craig	.....	.....	.....	0.43	
Crook	104	58	79.5	1.25	
Deer Trail*[5]	94	50	74.9	.....	
Delta†	101	48	73.6	0.97	
Divide Exper. Station	87	41	62.2	1.63	
Downing†	95	40	69.2	2.53	
Dumont*†[5]	88	44	63.5	2.25	
Durango†	85	48	66.9	2.81	
East Dale	.....	.....	.....	3.85	
First View*‖	94	.....	72.8	0.40	
Fleming	.....	.....	.....	1.28	
Fort Collins†	94	42	67.6	1.45	
Fox	.....	.....	.....	0.89	
Garnett	.....	.....	.....	1.98	
Glen Eyrie†	82	46	63.4	2.46	
Gold Hill*[1]	86	47	62.9	2.02	
Grand Junction†	97	57	76.1	2.24	
Greeley†	94	35	68.8	0.38	
Gulch	84	35	63.0	1.77	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Colorado—Cont'd.	°	°	°	*Ins.*	*Ins.*
Gunnison†	86	20	60.6	1.14	
Holly	.....	.....	.....	0.93	
Holyoke *a*	.....	.....	.....	1.27	
Holyoke *b*	.....	.....	.....	2.42	
Hugo*[5]	97	49	75.8	0.65	
Hugo (near)†	90	46	64.8	2.08	
Husted	95	41	66.2	3.08	
Julesburg†	103	47	73.4	1.47	
Kit Carson*[1]	97	52	75.5	.....	
La Jara†	84	45	64.0	1.93	
Lake Moraine†	72	34	52.9	3.95	
Lamar†	96	52	73.4	2.71	
Laporte	.....	.....	.....	2.63	
Las Animas†	97	45	71.2	5.00	
Lay*† [1]	94	52	67.5	0.54	
Le Roy†	98	49	72.4	0.79	
Longmont†	100	46	70.0	0.82	
Longs Peak	77	35	55.4	1.52	
Loveland	.....	.....	.....	0.35	
Manhattan	.....	.....	.....	1.80	
Meeker†	93	39	65.6	1.88	
Millbrook†	84	36	60.3	2.23	
Minneapolis†	98	50	73.6	1.48	
Monte Vista	82	42	61.6	2.78	
Moraine†	80	38	58.2	2.86	
North Pander Canyon	.....	.....	.....	1.02	
Ouray†	81	46	63.0	3.30	
Pagoda	94	36	64.5	1.20	
Paonia†	.....	.....	.....	1.27	
Parachute†	92	48	70.8	0.45	
Pinkhamton	.....	.....	.....	1.58	
Rangely†	95	34	69.2	0.32	
Redcliff	.....	.....	.....	1.95	
Rico	.....	.....	.....	3.60	
River Bend*[5]	98	58	74.8	.....	
Rocky Ford†	97	48	71.8	2.54	
Ruby†	.....	.....	.....	2.69	
Saguache†	81	44	62.5	3.13	
St. Cloud†	.....	.....	.....	2.84	
San Juan†	89	30	59.6	2.72	
San Luis†	96	38	65.1	1.88	
Santa Clara*† [1]	85	48	66.6	4.48	
Seibert†	.....	.....	.....	0.51	
Smoky Hill Mine†	89	41	61.6	2.60	
Snyder	.....	.....	.....	0.75	
Springfield†	.....	.....	.....	2.76	
Stamford*[1]	86	38	53.2	4.80	
Sterling	.....	.....	.....	0.35	
Surface Creek†	87	45	66.3	2.12	
Thon†	101	40	67.4	0.42	
T. S. Ranch†	.....	.....	.....	1.40	
Vernon†	104	43	71.2	0.84	
Vilas	.....	.....	.....	3.23	
Wallet†	.....	.....	.....	0.15	
Watkins*[1]	92	60	54.8	.....	
Yuma	.....	.....	.....	1.77	
Connecticut.					
Bridgeport	88[5]	48[5]	72.4[5]	7.36	
Canton†	86	40	68.6	6.02	
Colchester	87	42	69.7	3.63	
Falls Village	.....	.....	.....	2.77	
Greenfield Hill	.....	.....	.....	4.95	
Hartford *b*	.....	.....	.....	7.57	
Hartford *c*	86	48	71.0	.....	
Lake Konomoc	.....	.....	.....	3.02	
Middletown	90	44	71.8	4.57	
North Franklin	.....	.....	.....	2.76	
North Grosvenor Dale	93	39	69.0	3.60	
Norwalk	86	43	69.8	4.62	
Southington*[1]	85	45	70.2	5.43	
South Manchester	.....	.....	.....	5.78	
Storrs	84	42	68.2	3.48	
Thompson*[1]	82	46	67.8	.....	
Voluntown†	86	39	67.4	4.46	
Wallingford†	.....	.....	.....	4.72	
Waterbury	85	45	69.8	7.29	
West Simsbury	.....	.....	.....	5.44	
Windsor	85	44	69.9	6.05	
Delaware.					
Dover†	94	55	76.0	1.73	
Kirkwood[2]	.....	.....	75.3	.....	
Milford	98	53	80.7	3.65	
Millsboro	97	53	76.9	2.37	
Newark	97	49	73.2	1.56	
Seaford†	97	54	76.7	4.76	
Wilmington†	100	53	78.8	2.31	
District of Columbia.					
Dist'ing Reservoir*[5]	93	60	77.3	0.27	
Receiving Reservoir*‖	91	58	77.3	0.88	
West Washington	99	52	77.6	1.40	
Florida.					
Amelia†	94	71	80.6	1.08	
Archer†	97	71	82.0	4.98	
Avon Park†	96	71	83.2	5.76	
Bartow†	92[c]	69[c]	80.4[c]	8.41	
Brooksville†	92	71	80.6	9.84	
Clermont†	98	71	83.6	5.36	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Florida—Cont'd.	°	°	°	*Ins.*	*Ins.*
Earnestville†	99	67	82.6	7.55	
Eustis†	98	69	82.6	8.09	
Federal Point††	94	70	81.2	3.61	
Fort Meade†	96	67	80.4	7.05	
Frostproof*† [1]	96	72	79.9	7.13	
Gainesville†	99	72	82.8	8.34	
Grasmere†	93	70	80.9	7.09	
Green Cove Springs†	93	68	76.4	5.70	
Hypoluxo*† [1]	92	73	80.4	2.01	
Kissimmee†	97	70	83.5	5.53	
Lake City†	96	73	82.0	5.00	
Manatee†	96	67	79.6	8.22	
Merritts Island†	93	72	82.4	4.25	
Moseley Hall†	98	60	78.2	8.48	
Mullet Key†	92	74	82.8	9.62	
Myers†	92	72	81.6	9.60	
New Smyrna†	92	68	79.0	4.60	
Oak Hill*[1]	92	72	81.3	.....	
Ocala*† [1]	94	73	79.4	8.82	
Orange Lake	95	70	83.8	9.92	
Orange Park	95	67	81.6	4.81	
Orlando†	97	70	82.9	4.78	
Oxford*† [1]	94	74	81.2	4.57	
Plant City†	98	66	81.7	8.75	
St. Francis Barracks	91	70	80.3	4.65	
Tallahassee†	93	68	80.9	3.09	
Tarpon Springs†	90	71	80.5	9.36	
Georgia.					
Adairsville†	94	55	77.6	4.55	
Alapaha†	95	69	79.6	5.60	
Albany†	96	69	82.0	6.78	
Americus†	98	68	82.2	6.28	
Athens *a*	91	63	77.7	7.25	
Athens *b*†	99	59	79.8	7.41	
Bainbridge *a*†	97	70	82.0	4.99	
Bainbridge *b*†	.....	.....	.....	5.09	
Blakely†	95	70	81.4	9.53	
Brag†	98	65	81.6	11.27	
Camak†	92	64	78.8	13.43	
Canton†	.....	.....	.....	8.29	
Clayton†	90	47	71.7	11.24	
Columbus†	97	70	82.0	3.99	
Cordele†	94	69	81.2	9.66	
Covington	93	58	78.3	9.37	
Dahlonega†	90	52	74.4	15.38	
Diamond†	91	51	72.6	10.40	
Dublin *b*†	.....	.....	.....	5.42	
Eastman†	98	62	81.7	5.06	
Elberton†	93	65	78.5	9.56	
Fleming†	97	66	81.8	7.24	
Forsyth*†	95	72	80.7	6.96	
Fort Gaines†	94	69	81.2	5.83	
Gainesville†	90	56	75.0	9.16	
Gillsville†	92	59	77.5	6.81	
Griffin†	94	58	75.8	10.03	
Hawkinsville†	97	.....	.....	6.41	
Hephzibah*‖	91	72	77.8	5.70	
Lagrange†	94	65	78.1	4.93	
Leverett†	95	64	79.7	13.02	
Louisville†	98	60	79.8	7.32	
Macon *b*†	95	60	80.6	5.82	
Marietta†	88	54	75.6	8.78	
Marshallville†	.....	.....	.....	4.40	
Milledgeville†	92	60	79.5	5.93	
Millen†	100	66	82.4	9.38	
Monticello*† [1]	91	65	75.8	7.50	
Morgan†	95	68	80.7	7.43	
Newnan†	93	61	78.4	4.46	
Point Peter*[1]	94	62	79.3	7.25	
Poulan†	98	68	81.0	6.91	
Quitman†	92	67	80.2	5.02	
Ramsey†	92	49	75.8	4.28	
Resaca†	.....	.....	.....	7.04	
Reynolds†	.....	.....	.....	6.94	
Rome†	91	56	77.2	5.59	
Talbotton†	90	61	78.0	7.30	
Thomasville†	96	69	81.8	5.34	
Toccoa†	91	54[c]	74.8	8.80	
Union Point†	90	66	78.7	8.37	
Washington†	98	65	79.2	7.36	
Way Cross†	95	71	81.2	7.57	
Waynesboro†	92	65	79.4	11.99	
West Point†	95	68	80.5	6.52	
Whitesburg†	.....	.....	.....	5.90	
Idaho.					
American Falls†	98	33	69.7	0.00	
Atlanta†	86	32	61.4	0.12	
Bannister†	85	30	58.7	0.20	
Birch Creek†	94	32	66.0	0.85	
Bliss†	100	40	70.0	0.06	
Boise Barracks†	98	40	68.8	0.12	
Carriboo†	93	38	67.0	0.13	
Chesterfield†	94	25	61.4	0.06	
Corral*† [1]	91	45	65.0	0.07	
Dairy†	94	41	68.4	0.05	
Fort Sherman†	95	37	65.0	0.02	
Fraser†	94	39	64.8	0.27	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Idaho—Cont'd.	°	°	°	*Ins.*	*Ins.*
Gibbonsville†	92	31	62.8	T.	
Grangeville	92	42	66.4	1.09	
Hailey†	100	29	69.2	0.17	
Idaho City†	97	32	65.2	0.17	
Koatenai	93	38	66.3	0.00	
Lewiston†	100	43	72.8	0.30	
Lost River†				0.48	
Martin†	85	29	60.0	0.30	
Moscow†	94	33	62.7	0.32	
Murray†	92	31	60.9	0.00	
Nampa	98	42	69.2	0.11	
Oakley†	98	43	69.8	0.78	
Paris†	94	31	65.5	0.33	
Payette†	102	38	72.0	0.19	
St. Anthony	94	34	66.2	0.19	
Salubria†	102	35	70.9	0.53	
Soldier†	95	34	65.0	0.10	
Swan Valley†	94	37	64.4	0.07	
Three Creek†	94	29	64.8	0.06	
Warren†	90	27	59.4	1.05	
Illinois.					
Albion†	98	53	76.4	2.20	
Alexander†	102	50	76.8	1.99	
Altamont				2.30	
Anna†				2.41	
Ashton*†[1]	98	55	72.2	3.56	
Atlanta				3.39	
Aurora† *a*	98	45	73.2	3.92	
Aurora† *b*	95	47	74.1	4.80	
Beardstown†				4.10	
Bloomington†				5.12	
Bushnell†	98	51	74.8	3.33	
Cambridge	92	54	73.2	2.78	
Carlinville†	98	53	76.0	2.14	
Carlyle				4.19	
Carrollton	90	51	74.2	3.35	
Catlin†	96			2.42	
Chemung*[1]	99	44	74.2	3.00	
Chester†				2.87	
Cisne*†[5]	98	60	76.9	1.78	
Clear Creek†	100	42	73.7	2.42	
Coatsburg	98	52	75.0	4.90	
Cordova†				2.08	
Decatur†	95	49	75.2	1.35	
Dixon†	95	51	75.0	2.83	
Duquoin*[1]	97	58	78.9	2.20	
East Peoria†	94	51	73.0	2.38	
Evanston*[10]	94	60	75.1		
Fort Sheridan†	94	54	71.4	3.81	
Frederick	96			5.35	
Friend Grove†				2.62	
Galva†	95	49	73.4	2.74	
Gilman†				1.93	
Glenwood*†[1]	97	54	72.3	2.45	
Golconda	95	58	78.2	1.13	
Grafton†				1.92	
Greenville†	101	56	78.0	2.05	
Griggsville†	95	55	72.9	2.63	
Hallidy*[5]	95[d]	62[d]	82.2[d]	3.17	
Havana†	95	58	76.4	4.53	
Herrins Prairie*[1]	88	60	78.4	2.60	
Hillsboro*†[1]	98	55	78.3	3.24	
Holts	100	56	77.7	1.90	
Joliet†	100	48	75.6	2.96	
Jordans Grove†	99	49	76.8	2.56	
Kankakee†	88	54	72.0	2.61	
Kinmundy*†[6]	94	64	76.6	2.15	
Knoxville*[5]	96	54	75.6	2.54	
Lagrange	94	51	71.8	5.69	
La Harpe*[1]	100	52	75.7	3.24	
Lanark*†[1]	93	44	72.1	1.61	
Lexington*†[1]	90	56	74.7	2.89	
Loami				2.75	
Louisville†	95	53	75.0	2.56	
McLeansboro*†[3]		61	74.6	2.03	
Martinsville†	97	48	74.6	3.83	
Mascoutah*[3]	99	57	78.7	1.70	
Monmouth†	97	48	73.8	3.04	
Morrisonville†	93	49	73.3	1.50	
Mount Carmel†				1.91	
Mount Pulaski	98	56	75.7	1.47	
Mount Vernon	96	53	77.0	3.15	
New Burnside†	100	53	78.1	1.26	
Olney *a*[1]	98	54	78.5	1.48	
Olney *b*[1]	98	56[e]	75.5	1.95	
Oswego[1]	96	54	71.6	5.00	
Ottawa†	99	49	74.9	2.26	
Palestine†	95	50	76.4	3.10	
Paris†	100	50	75.6	1.65	
Peoria *a*†				2.09	
Peoria *b*	98	55	76.6	2.27	
Philo†	97	45	74.0	1.28	
Plum Hill*†[3]	96	52	74.8	2.83	
Rantoul*†[1]	97	55	75.8	1.39	
Riley†	93	50	71.8	3.94	
Rockford†	97	50	75.8	3.06	
Rose Hill	99	56	80.7	4.68	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Illinois—Cont'd.	°	°	°	*Ins.*	*Ins.*
Rushville	98	55	76.4	4.85	
St. Charles*[1]	104	50	73.7	4.35	
St. John*†[5]	97	59	80.7	2.04	
Scales Mound†	100	48	73.6	2.48	
Streator	95	53	76.2	2.60	
Sycamore*†[1]	92	50	71.8	3.06	
Tampico	98	48	75.8	2.75	
Tiskilwa*[1]	99	59	76.4	2.28	
Tuscola*†[1]	93	53	73.7	1.62	
Walnut†	99	48	75.5	3.23	
Wheaton	96	52	73.8	4.99	
Winnebago†	94	48	72.0	2.92	
Zion†	96	50	72.4	1.79	
Indiana.					
Anderson†	95	43	73.7	2.25	
Angola*[1]	99	50	75.0	4.20	
Ashboro†	96	48	74.7	2.68	
Butlerville†	100	44	76.6	1.79	
Cambridge City†	96	42	73.0	0.89	
Columbia City*[1]	94	57	72.8	3.23	
Columbus†	99	45	75.3	2.51	
Connersville†	96	45	73.9	0.87	
Degonia Springs*[6]	92	56	76.5	1.61	
Delphi	97	47	74.3	2.69	
Edwardsville*†[1]	98	58	77.6	2.34	
Evansville†	98	52	77.0	1.79	
Farmland†	94	44	72.9	3.12	
Hammond†	99	48	72.2	1.86	
Huntingburg†	96	52	73.7	1.00	
Huntington	94	46	73.9	1.67	
Jasper†	97	51	76.3	2.26	
Jeffersonville	96	54	76.8	1.12	
Kokomo†	97	47	75.1	1.55	
Laconia	92	55	76.1	0.88	
Lafayette†	100	47	75.0	1.96	
Logansport *a*†				1.94	
Logansport *b*	96	50	74.0	1.37	
Lyford†	100	48	75.3	4.56	
Madison†	98	52	77.1	2.61	
Marengo*[1]				4.30	
Marion†	100	44	74.9	1.37	
Mauzy†	98	44	74.1	1.21	
Mount Vernon†	98	56	78.3	1.58	
Princeton*†[1]	98	60	77.0	2.10	
Rockville†	98	48	74.8	2.22	
Scottsburg*[1]	95	57	75.0	3.17	
Seymour†	100	54	77.0	1.05	
South Bend†	97	46	73.5	2.35	
Sunman	98	48	75.5	2.73	
Terre Haute†	96	52	76.7	4.96	
Valparaiso†	98	33	73.4	3.32	
Vevay	98	54	78.3	2.70	
Vincennes†	102	48	76.5	1.69	
Worthington†	96	49	75.6	2.53	
Indian Territory.					
Eufaula†				5.70	
Healdton†	104	68	84.6	3.60	
Kemp†				2.59	
Lehigh†	98	62	80.7	3.64	
Purcell†	100	68	81.8	7.13	
Tahlequah*	96	59	77.3	3.89	
Tulsa†				2.20	
Vinita†	98	62	77.2	7.65	
Iowa.					
Afton	94	52	73.3	6.45	
Algona*[1]	95	48	70.6	6.92	
Alta†	98	46	71.8	4.44	
Amana†	95	48	72.9	2.34	
Ames *b*	96	44	72.4	4.93	
Ames *c*				4.93	
Atlantic†	98	45	70.8	7.69	
Atlantic (near)	95	53	73.5	6.49	
Audubon	94	45	72.3	7.57	
Belknap	94	54	74.1	5.25	
Belle Plaine	96	48	73.0	2.33	
Bonaparte†	101	52	75.5	4.48	
Carroll	94	41	71.5	4.94	
Cedar Falls†	95	47	72.7	4.63	
Cedar Rapids†	94	48	74.6	1.50	
Centerville	96	53	75.9	8.35	
Chariton	92	58	74.7	3.84	
Charles City†	90	47	70.7	4.95	
Clarinda†	90	54	73.2	4.64	
Clinton	97	50	74.1	1.87	
Corning†	93	52	72.6	4.00	
Cresco†	93	48	70.2	2.52	
Decorah†	95	41	70.8	1.74	
Delaware*[5]	98	52	71.8	3.70	
Denison†	96	48	72.2	3.45	
Elkader†	99	44	72.6	5.93	
Emmetsburg	96	41	70.6	3.94	
Estherville	96	44	73.0	3.16	
Fairfield†	95	49	72.6	3.39	
Fayette	95	41	71.1	4.71	
Forest City	94	43	71.0	5.26	
Fort Madison*†[1]	90	62	75.4	3.15	
Galva†	98	45	72.0	5.99	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Iowa—Cont'd.	°	°	°	*Ins.*	*Ins.*
Garden Grove	93	49	71.5	4.78	
Glenwood†	98	51	75.3	6.12	
Grand Meadow*[1]	94	52	70.5	3.93	
Greenfield†	96	48	73.4	5.90	
Grundy Center	93	49	71.2	5.50	
Guthrie Center	94	40	71.3	8.80	
Hampton	92	48	70.3	4.73	
Hawkeye				6.50	
Hopeville†	93	56	73.5	5.39	
Humboldt†	96	45	71.5	3.93	
Independence†	97	47	72.0	3.12	
Indianola*	96	54	75.3	4.01	
Iowa City†	97	50	73.6	1.77	
Iowa Falls†	93	42	68.7	5.37	
Jefferson				2.00	
Keosauqua†	98	55	75.4	4.29	
Knoxville	96	53	74.1	5.33	
Larrabee†	97	41	71.8	2.87	
Le Claire†				2.43	
Lenox*[1]	91	59	73.4	4.16	
Logan†	97	46	71.8	9.84	
Madrid	95	42	73.9	4.99	
Maple Valley				5.12	
Marshall†	96	42	72.9	3.87	
Mason City†	93	38	67.7	5.71	
Maxon*[1]	99	56	74.6	4.21	
Mechanicsville	95	49	73.0	1.47	
Monticello*†[1]	91	50	69.4	1.46	
Mooar	96	57	75.6	3.35	
Mount Ayr†	94	54	74.0	4.01	
Mount Pleasant*[1]	90	59	77.2	3.77	
Mount Vernon*[1] *c*	95	60	75.3		
Neola	103	42	74.0	6.87	
Newton†	95	51	73.6	3.10	
North McGregor†				2.51	
Ogden	95	48	73.0	4.61	
Osage*†[3]		49	67.8	4.17	
Oskaloosa†	99	46	73.2	3.25	
Ottumwa	96	53	74.8	3.48	
Ovid†	98	53	74.5	5.06	
Panama†	95	49	73.0	10.63	
Portsmouth	96	48	72.0	9.81	
Primghar	97	44	72.0	1.08	
Rock Rapids	100	34	70.4	0.41	
Sac City†	94	42	69.2	7.89	
Seymour†	100	54	75.2	6.26	
Sibley		41		0.67	
Sidney	95	53	74.8	5.61	
Spencer	97	37	69.8	3.16	
Spirit Lake†	99	41	74.0	1.14	
Toledo*[1]	95	46	73.9	2.58	
Villisca†	93	48	71.0	6.38	
Vinton*[1]	95	50	72.7	2.24	
Washington†	96	49	73.8	3.06	
Waterloo	97	49	72.6	4.68	
Waukee	95	52	74.0	6.40	
West Bend*†[1]	94	47	68.4	5.57	
What Cheer				2.25	
Williams	91	47	68.7	4.59	
Wilton Junction†	95	46	73.0	2.93	
Winterset	97	48	72.5	6.07	
Kansas.					
Abilene†	101	58	77.3	2.58	
Achilles*[3]	107	56	71.9	2.56	
Altoona*†[3]	94	63	75.2	7.04	
Beloit†	99	56	74.9	7.32	
Blaine	98	54	75.6	7.52	
Burlington†	96	55	75.3	8.41	
Campbell	99	53	76.5	8.46	
Colby†	99	47	72.2	1.04	
Coldwater†	97	59	77.1	5.05	
Collyer*[1]	104	51	77.7	3.25	
Columbus†	94	57	76.1	5.54	
Coolidge†	96	50	73.5	1.47	
Cunningham†	103	56	77.6	5.61	
Downs				6.69	
Dresden*†[1]	105	56	73.0	2.64	
Ellinwood*[1]	96	57	77.5	7.08	
Emporia†	91	59	76.4	12.45	
Englewood†	97	55	77.0	3.61	
Eureka†				7.74	
Eureka Ranch†	106	51	75.4	2.10	
Fort Riley†	94			7.13	
Fort Scott				7.14	
Frankfort	105	53	79.2	9.33	
Garden City†	98	52	75.2	0.62	
Garfield				2.83	
Gibson*[1]	100	53	72.1	2.75	
Girard*[1]	94	64	77.5	6.34	
Goodland	100	51	72.9	0.51	
Gove*†[1]	103	58	74.4	1.78	
Grainfield*[6]	104	56	76.0	T.	
Grenola*[1]	94	59	76.2	5.85	
Grinnell*[5]	106	60	82.4		
Halstead	96[e]	58[d]	75.2[d]	7.38	
Haviland	98			2.49	
Hays	104	42	72.6	4.40	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Kansas—Cont'd.	°	°	°	*Ins.*	*Ins.*
Horton†	96	55	74.7	8.37	
Hutchinson†	100	54	77.5	5.17	
Independence	99	59	78.6	5.53	
Ionia†				6.33	
Lawrence*[1]	94	58	74.2	12.30	
Lebo†	98	55	76.6	8.83	
Macksville†	102	52	77.2	4.20	
McPherson†	93	53	75.6	6.88	
Manhattan *b*	97	54	77.3	10.74	
Manhattan *c*[*2]	110	60	73.7	10.73	
Marion	98	58	78.4	5.68	
Meade†	106	55	81.3	0.35	
Medicine Lodge	95	62	77.0	3.51	
Minneapolis†	101	55	76.8	4.20	
Morland†	101	51	73.6	3.65	
Morton†	97	52	75.4	1.34	
Mount Hope*[1]	94	63	77.0	7.79	
Ness City†	100	62	79.3	1.95	
New England Ranch†	100	53	73.2	1.59	
Norton†	99	51	72.8	2.46	
Norwich*†	99	66	79.0	5.86	
Oberlin†				2.45	
Olathe†	94	55	75.1	11.45	
Oswego†	96	56	77.6	5.34	
Ottawa†	94	56	75.8	9.07	
Paola†	94	62	77.7	9.30	
Phillipsburg†	106	52	76.2	2.62	
Pleasant Dale	100	54	76.5	5.58	
Quinter*[1]	102	51	76.8	3.25	
Rome*†	95	62	76.3	5.66	
Russell	101	53	74.3	4.89	
Salina†	95	58	77.9	2.88	
Scott City	105	51	75.2	T.	
Sedan†	94	61	78.1	5.33	
Sharon Springs*[1]	102	50	73.8	0.25	
Tribune†	97[d]	51[d]	73.8[d]	0.40	
Wakefield*[1]	100	62	77.2	4.85	
Wallace*[1]	100	54	78.5	0.00	
Wamego*[1]	94	56	75.3	10.07	
Wellington				8.04	
Winfield*[5]	104	56	81.5	6.93	
Winona*[5]	100	60	80.5	1.37	
Yates Center†		57		7.19	
Kentucky.					
Alpha†	94	50	76.9	2.41	
Blandville†	94	55	77.0	0.49	
Bowling Green *a*[1]	93	52	73.7	3.52	
Bowling Green *b*†	94	58	78.1	3.63	
Burnside†				3.15	
Caddo†	99	57	77.7	0.95	
Canton*†	95	58	76.8	2.93	
Carrollton†	102	48	77.4	2.29	
Catlettsburg†				2.50	
Cromwell†				1.74	
Custer†	92	52	76.0	1.40	
Earlington	91	55	74.4	3.91	
Edmonton†	90	52	72.6	1.79	
Elizabethtown†	96	55	76.1	1.50	
Eubank†	97	49	75.4	1.01	
Falmouth†				1.13	
Fords Ferry†	96	53	78.3	2.00	
Frankfort†	94	56	76.8	0.16	
Franklin*†	92	63	77.9	2.80	
Georgetown	94	52	75.9		
Greendale*[1]	90	57	76.1	2.01	
Greensburg*†	93	55	74.2	2.38	
Harrods Creek†	96	54	77.6	1.28	
Henderson†	95	57	78.2	2.32	
Hendricks				2.50	
Lola†	94	50	76.0	2.27	
Louisa†	94	52	75.6	2.78	
Marrowbone†	94	51	76.2	3.05	
Matlock				1.45	
Mount Sterling†	93	48	73.8	3.45	
Paducah *a*†				2.29	
Paducah *b*†	99	57	80.2	1.95	
Pleasure Ridge Park†	95	51	75.4	2.07	
Princeton†	97[d]	52[d]	76.8[d]	1.67	
Pryorsburg†	93	56	80.0	3.67	
Russellville†	94	54	77.6	5.07	
Sandy Hook†	95	49	75.4	2.85	
Shelby City*[1]	95	53	74.9	1.77	
Shelbyville†[2]	100	49	77.0	1.57	
South Fork*[2]			72.9	1.77	
Springfield†	94	52	73.8	1.41	
Williamsburg†				5.70	
Louisiana.					
Abbeville	92	67	80.4	4.46	
Alexandria†	96	66	80.1	4.89	
Amite†	97	67	81.4	4.45	
Ashwood	93	70	80.7	7.56	
Bastrop†	92	66	79.9	6.20	
Baton Rouge†	94	70	81.6	3.35	
Calhoun†	94	66	80.2	4.69	
Cameron	98	69	83.0	5.60	
Cheneyville†	95	67	81.4	7.04	
Clinton†	96	68	81.8	2.83	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Louisiana—Cont'd.	°	°	°	*Ins.*	*Ins.*
Coushatta *a*†				2.45	
Coushatta *b*†	98	68	81.7	2.24	
Covington†	96	68	81.0	8.84	
Davis	95	63	78.9	3.03	
Delhi†				6.72	
Donaldsonville†	94	68	82.0	7.69	
Elm Hall				5.95	
Emilie†	94	69	81.2	4.01	
Farmerville	93	65	80.4	5.26	
Franklin†	94	69	82.0	6.30	
Grand Coteau	92	72	81.2	4.27	
Hammond†	94	69	80.4	4.21	
Jeanerette†	97			7.31	
Lafayette†	96	69	82.0	6.86	
Lake Charles†	96	68	82.1	2.84	
Lake Providence†	95	68	81.4	6.19	
Lawrence†	96	71	83.2	6.20	
Liberty Hill	101	67	83.3	1.59	
Maurepas	97	68	82.1	7.48	
Melville†	95	70	81.6	3.30	
Minden†	100	67	83.4	0.87	
Monroe†	96	70	81.9	6.40	
Natchitoches†	96	67	81.2	2.38	
New Iberia*	92	70	81.6	9.74	
Oak Ridge†	97	66	82.4	6.70	
Oberlin	95	68	81.4	3.90	
Opelousas†	96	68	82.2	5.32	
Oxford†	95	64	79.0	0.53	
Paincourtville†	95	65	80.7	8.83	
Plain Dealing	94	68	81.2	2.07	
Rayne†	98	68	82.8	5.96	
Schriever†	98	68	82.6	6.31	
Shell Beach	94	72	82.2	4.94	
Southern University†	92	70	80.1	8.75	
Sugar Ex. Station†	98	72	82.0	6.99	
Sugartown†	94	69	81.1	4.75	
Thibodeaux				8.05	
Toledo	97			4.83	
Wallace	92	70	81.3	4.68	
West End				5.47	
White Sulphur Springs†				3.54	
Maine.					
Bar Harbor	88	42	65.6	2.64	
Belfast*[6]	80	56	65.8	1.96	
Calais†	83	46	65.0	2.60	
Cornish*[1]	84	50	66.1	3.10	
Fairfield	82	40	65.2	2.59	
Farmington†	91	43	67.4	5.93	
Flagstaff†	90	37	61.9	3.54	
Gardiner	87	46	67.2	3.28	
Houlton†	88	38	63.6	3.10	
Kineo†	78[c]	43[c]	63.0[c]	4.90	
Lewiston	90	49	67.4	2.54	
Madison*[1]	92	52	66.6		
Mayfield	85	36	62.9	3.86	
North Bridgton	86	47	66.8	2.98	
Orono†	86	41	66.4	2.14	
Petit Menan*[1]	72	51	60.9		
Waterville				3.17	
West Jonesport*[1]	78	47	60.7		
Maryland.					
Bachmans Valley*[1]	98	56	76.2	2.52	
Boettcherville*[1]	96	46	71.6	1.90	
Charlotte Hall†	99	52	78.7	1.59	
Cherryfields†[2]			76.0	2.29	
College Park	98	47	76.2	2.57	
Cumberland *a*†	94	50	74.0	1.81	
Cumberland *b*	98	54	77.2	1.69	
Darlington†	93	50	73.8	1.49	
Deer Park	90	31	66.0	1.31	
Denton†	97	55	76.8	3.14	
Easton†	95	52	76.0	3.35	
Ellicott City	93	60	77.6	1.72	
Fallston*[1]	94	56	74.6	2.38	
Frederick *a*	97	50	75.2	1.88	
Garrison	96	49	74.0	3.15	
Grantsville	88	40	67.4	2.27	
Great Falls*[5]	94	57	77.0	1.21	
Green Spring Furnace	96	44	74.3	2.22	
Hagerstown†	100	48	74.4	3.41	
Hancock	96	45	73.6	3.02	
Jewell†	94	50	76.3	1.51	
Johns Hopkins Hospital	98	50	77.2		
Laurel	96	46	74.8	1.60	
Lisbon[2]			73.9		
McDonogh	94	54	75.1		
Mardela Springs†[1]	95[b]	56	79.9	1.31	
Oakland†	86	38	64.4	1.98	
Oldtown	95	48	73.8	2.79	
Pocomoke City	97	60	79.4	1.85	
Popes Creek	98	51	79.1	0.49	
Princess Anne	95	51	76.7	2.53	
Sharpsburg	96	49	75.1	1.15	
Solomons†	98	60	80.2	2.05	
Sunnyside	90	37	66.7	1.29	
Upper Marlboro†	97	50	76.0	1.09	
Western Port	99	42	72.1	1.08	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Maryland—Con'd.	°	°	°	*Ins.*	*Ins.*
Westminster	102	54	79.0	2.58	
Woodstock	96	50	74.7	1.11	
Massachusetts.					
Adams	86	40	67.2		
Amherst	86	45	68.8	2.74	
Amherst Ex. Station *b*	90	38	69.7	3.46	
Andover				2.37	
Ashland				4.06	
Bedford	87	44	67.8	3.18	
Beverly Farms	81	43	65.3	4.30	
Blue Hill (summit)	87	46	69.0	2.80	
Blue Hill (valley)	90	36	67.9	3.34	
Boston *a*				3.28	
Brockton *a*	89	45	69.7	3.81	
Brockton *b*				3.08	
Brockton *c*				3.75	
Cambridge *a*	89	45	69.7	3.90	
Cambridge *b*	89	49	71.2	4.71	
Chestnut Hill	92	48	70.4	3.91	
Clinton				3.15	
Cohasset				3.90	
Concord†	89	40	68.5	3.45	
Dudley[1]	87*	44	69.1	2.91	
East Templeton*[1]	86	53	70.7	1.97	
Egg Rock, Nahant	81	48	66.2		
Fall River	85	50	71.3	3.55	
Fiskdale				4.80	
Fitchburg *a**[1]	85	52	67.4	2.09	
Fitchburg *b*	87	41	68.9	2.16	
Framingham	87	40	67.9	4.00	
Gilbertville†				3.32	
Groton	87	39	66.6	2.69	
Hadley	89	37	68.3	3.18	
Hingham				4.93	
Hobbs Brook				3.03	
Hyannis	88	54	73.8	3.89	
Hyde Park*[6]		50	70.1		
Lake Cochituate	90	34	67.9	3.96	
Lawrence	94	46	71.1	2.49	
Leeds	87	39	68.1	3.31	
Leominster				1.62	
Long Plain*[6]	85	48	68.9	2.92	
Lowell *a*	88	46	69.7	2.02	
Lowell *b*	89	42	68.3		
Lowell *c*	92	45	71.0		
Ludlow Center	82	40	66.2	2.90	
Lynn *a*	83	48	68.8	4.55	
Lynn *b*	86	47	69.2		
Mansfield*[1]	90	39	69.4	3.06	
Middleboro	86	39	68.0	2.94	
Milton	85	50	68.0		
Monroe	83	36	63.4	3.37	
Monson	86	40	69.1	3.45	
Mount Nonotuck				3.64	
Mount Wachusett				1.94	
Mystic Lake				5.31	
Mystic Station				5.39	
Natick*[1]	86	51	69.6	3.44	
New Bedford *a*	85	48	69.6	3.02	
New Bedford *b*	86	47	69.7	2.51	
North Billerica	87	43	68.2	2.83	
Pittsfield	82	45	64.2	2.38	
Plymouth				2.05	
Provincetown	84	54	69.9		
Roberts Dam				4.33	
Roxbury	86[d]	47[d]	68.9[d]	2.72	
Salem				4.96	
Salisbury				3.09	
Somerset*[1]	96	47	73.9	4.13	
Springfield Armory	89	43	70.6	3.70	
Taunton *c*	86	40	67.9	3.77	
Taunton *d*	90	42	69.8	3.55	
Turners Falls	88	44	69.3	3.17	
Wakefield†				3.67	
Waltham				4.92	
Webster				3.41	
Westboro†	89	39	70.7	4.98	
Williamstown	85	41	67.6	3.25	
Winchendon				4.14	
Winchester				5.56	
Winthrop				4.70	
Worcester *b*	85	48	69.5	5.19	
Michigan.					
Adrian	100	43	72.6	3.51	
Allegan	97	42	72.4	4.57	
Alma	92	40	68.6	3.25	
Ann Arbor	90	48	70.0	2.57	
Arbela[2]			66.9	4.04	
Ball Mountain	89	43	67.0	3.64	
Battle Creek	96	46	72.0	3.84	
Berlin*[1]	96	42	69.3	3.30	
Berrien Springs*[1]	99	53	72.9	3.65	
Birmingham	96	43	70.2	2.17	
Bois Blanc*[10]	92	51	64.9		
Boon	87	29	64.2	2.30	
Calumet	85	48	62.2	2.54	
Charlevoix	85	43	64.8	2.38	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Michigan—Cont'd.	°	°	°	*Ins.*	*Ins.*
Cheboygan	86	41	63.0	3.00	
Climax				2.93	
Clinton	97	42	72.0	2.15	
Crisps *10	85	45	61.1		
Escanaba	89[j]	52[j]	69.2[j]	3.63	
Fairview	93	40	69.7	1.95	
Fitchburg	94	40	68.6	3.79	
Flint	95	37	66.4	3.36	
Grand Rapids	98	45	71.7	3.24	
Grape	94	51	72.6	1.69	
Grayling	92	29	64.6	2.02	
Grindstone City *10	89	40	63.1		
Hammonds Bay *10	86	48	65.9		
Hanover	91	48	70.4	2.85	
Harbor Springs	80	45	62.6	1.50	
Harrisville	87	39	63.0	4.79	
Hart	80	40	62.0	3.90	
Hastings	91	44	70.0	3.55	
Hayes	92	40	66.0	1.93	
Hesperia	96	40	70.0	4.00	
Holland *10	84	53	70.6		
Howell	95	38	69.5	3.29	
Ivan	91	36	65.8	2.27	
Jeddo	94	42	68.0	2.58	
Kalamazoo	94	50	72.7	4.63	
Lansing	91	44	69.6	5.38	
Lathrop *1	85	40	62.1	2.22	
Lewiston	93	41	65.9	2.35	
Ludington *10	85	50	67.1		
Madison	96	45	72.1	2.38	
Manistee *10	86	50	65.9		
Mayville	93	46	69.4	3.79	
Middle Island *10	86	50	64.3		
Mottville	96	43	71.5	4.56	
Muskallongee Lake *10	81	43	60.4		
North Marshall	94	40	69.5	4.46	
Northport	83	43	64.0	2.95	
Old Mission	86	46	67.4	3.13	
Olivet	90	48	70.6	4.64	
Ottawa Point *10	87	48	66.6		
Ovid	94	41	69.8	3.46	
Parkville				4.73	
Pentwater *10	92	50	69.7		
Point aux Barques *10	90	46	67.4		
Pontiac	90	41	68.6	2.75	
Rockland	88	42	62.0	2.40	
St. Ignace	80	40	61.0	2.30	
St. Johns	96	42	72.4	2.50	
Sand Beach *a*	96	41	65.8	3.60	
Sand Beach *b* *10	80	43	66.4		
Saranac	92	40	68.8	3.83	
Ship Canal *10	95	44	65.1		
Standish	93	38	67.1	2.91	
Stanton	92	38	68.3	3.47	
Sturgeon Point *10	89	39	64.7		
Thornville	94	44	71.2	4.11	
Thunder Bay Island *10	80	51	63.4		
Two Heart River *10	84	44	60.8		
Vandalia	95	48	72.2	4.05	
Vermillion Point *10	80	38	54.8		
Ypsilanti	91	40	67.7	2.27	
Minnesota.					
Albert Lea†	92	46	70.2	3.00	
Alexandria *a*†				2.09	
Beardsley†	101	30	66.6	0.98	
Belleplaine				3.05	
Bird Island	100	36	68.6	2.37	
Blooming Prairie†	94	44	69.1	2.50	
Bonniwell†	97	42	69.6	2.46	
Caledonia†	92	46	70.5	1.92	
Cambridge†	89	33	65.8	2.46	
Camden†	97	38	68.4	3.06	
Campbell	94	33	65.0	2.71	
Carver[2]			64.8	3.06	
Clear Lake†	97	38	67.2	2.82	
Clear Water *1	92	46	64.7	1.39	
Collegeville	98	43	70.2	1.60	
Crookston†	94	38	64.8	3.00	
Farmington†	96	41	69.6	1.16	
Fergus Falls†	91	37	65.4	2.32	
Glencoe†	97	38	67.2		
Glenwood	98	37	66.8	1.28	
Grand Meadow†	95	40	69.9	1.88	
Grand Portage†	80	40	57.9	1.77	
Granite Falls	102	34	68.9	1.52	
Hutchinson†	98	37	69.2	1.40	
Koochiching†	85[d]	34[d]	62.0[d]	1.90	
Lake Winnibigoshish *1	83	46	62.6	3.57	
Lawrence†	90	34	64.2	2.78	
Leech Lake[1]	86*	38	62.0	1.70	
Long Prairie†	91	38	64.7	3.17	
Luverne†	94	40	68.8	2.14	
Maple Plain	96	41	68.6	1.96	
Mazeppa[1]	98*	40	68.2	1.70	
Milan†	102	33	69.0	2.15	
Minneapolis *a*†	93	46	69.2	2.27	
Minneapolis *b* *9	96	41	69.1	1.94	
Minnesota—Cont'd.					
Minnesota City†	93	40	69.0	2.30	
Montevideo†	102	36	69.6	2.26	
Morris†	97	34	68.4	1.76	
Mount Iron†	83	34	60.8	3.29	
Myrna *1	98	49	76.5		
New London	97	40	70.0	2.08	
New Richland *1 *d	92	48	70.1		
New Ulm†	99	40	71.0	1.14	
Park Rapids†	89	36	62.6	2.77	
Pine River *1	86	48	65.0	2.23	
Pleasant Mounds†	94	32	70.4	2.07	
Pokegama Falls[1]	87*	32	61.0	2.56	
Red Lake *g*	90	36	62.2	2.49	
Redwing†				1.84	
Reeds Landing				2.21	
Rolling Green†	93	41	70.5	2.90	
St. Charles†	92	40	68.8	2.63	
St. Cloud	91	44	66.6	2.28	
St. Olaf	92	40	65.5	3.03	
St. Peter†	98	40	69.0	2.01	
Sandy Lake Dam[1]	85*	40	63.0	2.50	
Sauk Center	95	38	65.0	2.17	
Shakopee[6]	92*	46	70.5	2.06	
Sunrise City *6	92	40	66.7		
Tower†	84	37	61.6	1.22	
Two Harbors†	85	42	65.0	2.63	
Wabasha *1	93	49	68.6	2.19	
Willmar†	95	41	67.2	3.04	
Winona	94	50	71.4	2.71	
Worthington	94	41	70.2	1.68	
Zumbrota *1	94	46	69.8		
Mississippi.					
Aberdeen†	101	60	81.2	1.15	
Agricultural College	94	62	80.2	4.71	
Batesville†	94	61	79.0	0.53	
Biloxi†	90	70	80.4	7.75	
Briers†	91	68	79.0	7.49	
Brookhaven†	100	65	81.6	5.11	
Canton†	91	71	80.0	5.67	
Columbus *a*†				8.91	
Columbus *b*†	105	63	83.0	7.36	
Corinth†	95	56	75.0	3.62	
Crystal Springs†	96	65	79.4	3.96	
Duck Hill†	95	65	79.6	1.98	
Edwards	95	68	81.3	4.56	
Fayette†	95	65	79.8	4.18	
French Camps†	97	59	78.2	3.99	
Fulton†	96	60	80.8	2.56	
Greenville *a*	92	69	80.4	6.02	
Greenville *b*†	97	64	80.8	7.23	
Hattiesburg†	97	61	79.0	5.5[h]	
Hazlehurst†	97	66	81.0	5.94	
Hernando†	95	62	79.8	0.60	
Holly Springs†	94	62	79.2	2.28	
Itta Bena†	90	68	78.9	3.65	
Jackson†	96	66	80.8	3.03	
Kosciusko†	95	65	80.0		
Lake†	91	63	78.8	6.20	
Leaf *1	94	74	80.4		
Leakesville†	97	70	81.6	4.84	
Leonia†	97	60	80.4	4.29	
Logtown†	95	72	80.8	9.83	
Louisville†	96	62	79.1	4.61	
Macon†	98	64	82.2	2.67	
Magnolia†				8.27	
Mayersville	93	67	81.4	6.30	
Moss Point†	95	70	82.4	12.60	
Natchez†	96	68	80.6	6.46	
Okolona†	100	60	82.0	1.37	
Pontotoc†	97	61	80.8	1.86	
Port Gibson†	96	66	80.8	7.14	
Stonington *1	90	72	79.3		
Thornton†	92	72	82.0	4.19	
Topton *1	93	72	81.5	5.60	
University	98	62	79.6	2.03	
Vaiden	101	64	82.2	4.09	
Water Valley *† 1	98	65	78.2	1.31	
Waynesboro *a*†	100	62	80.6	5.65	
Waynesboro *b*†	98	64	81.2	6.16	
Woodville†	96	68	80.4	5.24	
Yazoo City†	100	66	83.0	4.91	
Missouri.					
Akron				6.37	
Appleton City†	93	57	76.0	2.81	
Arthur *† 3		63	73.8	4.50	
Bagnell†				3.83	
Bethany	96	53	74.9	9.42	
Birch Tree	92	54	75.0	2.76	
Bluffton *1	93	64	77.9	2.26	
Boonville†				3.00	
Brunswick	95	52	76.1	3.52	
Carrollton†	92	57	75.6	4.70	
Conception	88	56	73.4	8.56	
Cowgill *5	94	58	76.6	4.28	
Darksville†	93	53	74.9	5.18	
Downing				3.55	
East Lynne *3		58	72.2	6.06	
Missouri—Cont'd.					
Edgehill *5	92	56	74.2	3.11	
Eight Mile *1	93	57	72.5	5.66	
Eldon *1	98	58	75.8	2.78	
Elmira	96	48	74.2	5.45	
Emma *3		64	76.8	3.75	
Fairport				7.61	
Farmersville				8.99	
Fayette	95	54	75.0	2.62	
Fulton				1.67	
Gallatin *1	96	55	74.7	8.07	
Gayoso *3		60	78.6	3.18	
Glasgow	96	51	75.0	2.90	
Gordonville *3	92	57	73.6	1.35	
Gorin *3	100	55	74.4	3.74	
Grove Dale				5.65	
Half Way	93	55	75.0	2.78	
Harrisonville†	95	55	74.8	7.30	
Hastain	97	55	76.1	3.45	
Hermann†				1.17	
Houston	94	58	74.5	4.01	
Houstonia (near)				2.37	
Humansville	93	53	73.4	2.36	
Ironton *† 1	92	57	72.9	2.48	
Jefferson City†	94	56	76.6	3.10	
Kidder	96	55	74.3	9.92	
Lamar	92	60	76.0	3.20	
Lamonte				2.98	
Langdon†	94[b]	48[b]	72.9[b]	9.47	
Lebanon	90	59	75.2	3.63	
Lexington†	93	55	74.6	4.86	
Liberty	97	55	78.7	7.39	
Louisiana Bridge†				5.03	
McCune *† 1	93	54	74.2	5.86	
Marble Hill	94	50	75.4	1.75	
Marceline	92			9.18	
Marshall†	97	40	74.6	2.53	
Maryville *†	91	53	69.6	6.51	
Mexico†	97	50	75.8	2.81	
Miami				3.15	
Mine La Motte†	90	51	73.8	2.70	
Mineral Springs	94	56	75.2	3.07	
Mount Vernon	94	52	74.6	2.76	
Nevada				4.68	
New Haven *1	96	56	74.9	2.69	
New Madrid	99	57	80.5	3.60	
New Palestine				2.28	
Oakfield†	93	58	76.2	5.66	
Oak Ridge *4		59	76.0	2.52	
Olden†	94	56	76.7	4.89	
Oregon *a*	94	57	75.4	8.06	
Oregon *b*	94	55	74.0	8.26	
Osceola†				2.95	
Oto				3.10	
Palmyra *5	96	58	79.8	5.34	
Phillipsburg *† 1	93	64	75.2	3.34	
Pickering *2	102	54	71.3	6.13	
Pierce City *1 *c*	95	60	76.3	5.25	
Platte River *3	97	56	71.6	7.71	
Poplar Bluff	95	57	77.7	1.65	
Potosi	92	46	72.5	2.88	
Princeton *1	98	50	75.9	6.31	
St. Charles	96	54	76.0	2.33	
St. Joseph†				8.14	
St. Louis	93	54	74.8	2.46	
Sarcoxie *3	98	66	75.8	5.58	
Shelbina				5.30	
Steffenville				5.79	
Stellada†	96	52	74.0	3.08	
Sublett	90	48	72.5	5.40	
Tindall				5.41	
Trenton *3		57	70.7	7.90	
Unionville†	104	50	75.8	5.71	
Vermont *† 1 *d*	93	58	73.4	2.19	
Versailles				1.63	
Vilas				5.07	
Virgil City				3.68	
Warrensburg *1	100	62	78.2	1.47	
Warrenton	92	57	75.9	1.78	
Wheatland				1.88	
Willow Springs	103	53	77.4	3.26	
Zeitonia *1	98	56	73.2	2.34	
Montana.					
Big Timber	97	39	67.0	1.38	
Billings†	101	40	71.8	1.51	
Boulder†	89	35	61.8	0.06	
Bozeman†	89	32	62.8	0.57	
Butte†	86	35	63.2	0.19	
Choteau†	95	35	63.5	0.39	
Cokedale†	92[b]	32[b]	64.6[b]	1.15	
Columbia Falls†	97	25	61.6	0.21	
Fort Benton†	98	34	65.1	0.20	
Fort Custer†	100	45	71.3	1.25	
Fort Keogh†	103	36	70.0	0.39	
Fort Logan†	90	26	58.4	0.22	
Fort Missoula	94	34	63.0	0.25	
Glasgow†	103	35	66.3	0.54	
Glendive	107	42	70.7	0.20	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Montana—Cont'd.	°	°	°	*Ins.*	*Ins.*
Grantsdale	93	19	63.4	0.12	
Great Falls†	97	40	66.4	0.20	
Hogan†	98	33	60.2	1.00	
Kipp	92	23	56.9	0.04	
Libby†	106	26	63.2	0.10	
Manhattan†	93	28	62.2	0.55	
Martinsdale†	96	32	61.9	1.02	
Marysville†	88	37	63.4	0.42	
Pony	86	41	65.6	1.00	
Poplar	99	36	65.8	0.39	
Troy†	96	31	62.6	0.23	
Utica†[1]	96	36	66.0	.....	
Virginia City†	87	39	63.2	0.83	
White Sulphur Springs†	88	32	60.6	1.90	
Wibaux†	105	35	69.8	0.89	
Yale†	96	32	63.1	0.93	
Nebraska.					
Agee*[1]	101	53	71.0	2.81	
Albion†	98	.....	.....	2.39	
Alliance	.....	.....	.....	0.81	
Ansley†	96	46	71.7	2.63	
Arapaho	.....	.....	.....	3.49	
Arborville*[1]	104	52	75.4	8.91	
Arcadia*[5]	98	48	73.2	3.60	
Ashland *a*†	99	44	73.8	6.36	
Ashland *b**[1]	100	59	76.5	6.07	
Ashton	98	46	73.2	3.05	
Auburn*[1]	100	53	74.6	5.64	
Aurora*[1]	98	52	74.8	4.05	
Bancroft	.....	.....	.....	5.16	
Bassett	100	43	71.0	1.74	
Beatrice†	99	50	75.1	3.79	
Beaver City	101	50	74.5	2.14	
Benkelman*[1]	104	56	74.9	1.21	
Blue Hill*[1]	100	60	75.1	7.56	
Bratton*[1]	95	54	74.1	6.84	
Broken Bow*[1]	98	50	72.8	3.94	
Burchard*[1]	95	60	76.6	7.28	
Burwell*[1]	94	54	75.6	4.53	
Callaway†	96	49	70.9	6.35	
Central City*[5]	100	55	76.9	2.69	
Chadron	.....	.....	.....	0.60	
Chester*[1]	100	58	73.8	6.79	
Columbus†	97	49	72.8	4.53	
Cornlea	.....	.....	.....	4.04	
Creighton	97	40	71.2	2.83	
Crete	96	53	75.6	6.29	
Culbertson	.....	.....	.....	3.96	
Curtis *a*†	101	49	74.4	3.24	
Curtis *b*[1]	102	51	78.2	2.90	
David City*†[1]	96	53	71.5	5.95	
Divide*[1]	96	54	74.0	2.96	
Dunning*[1]	98	55	72.9	2.39	
Edgar*[1]	98	60	78.4	4.80	
Elba	.....	.....	.....	3.86	
Elwood	.....	.....	.....	3.62	
Ericson*[1]	100	56	78.0	2.26	
Ewing†	.....	.....	.....	2.68	
Fairbury	100[4]	55[e]	75.8[4]	7.83	
Fairmont*[1]	98	54	73.8	3.66	
Filley	.....	.....	.....	4.35	
Fontanelle	99	51	73.5	7.78	
Fort Robinson	98	45	71.0	0.68	
Franklin†	.....	40	.....	4.26	
Geneva†	100	50	75.4	4.72	
Genoa†	98	54	74.2	5.10	
Gering†	98	52	72.4	0.18	
Gibbon	97	54	73.8	4.11	
Gothenburg	101	50	75.0	3.67	
Grand Island*[1]	106	58	77.8	4.93	
Greeley	.....	.....	.....	3.94	
Haigler	.....	.....	.....	0.83	
Hartington†	92	42	69.8	3.92	
Harvard*[1]	102	58	74.2	4.23	
Hastings*[1]	95	50	71.6	6.68	
Hayes Center†	.....	.....	.....	3.17	
Hay Springs†	102	41	70.3	0.90	
Hebron†	98	52	74.8	6.67	
Hickman*[1]	96	60	79.4	3.45	
Holdredge *b*[1]	100	58	79.8	2.92	
Imperial *a*†	100	47	71.4	2.98	
Imperial *b*[1]	96	56	75.6	2.84	
Indianola*[5]	104	55	75.8	2.45	
Kearney	.....	.....	.....	0.71	
Kennedy*†[1]	99	40	71.7	0.64	
Kimball†	97	45	70.2	0.28	
Lexington†	.....	.....	.....	5.43	
Lincoln	98	53	74.6	4.00	
Lodgepole†	99	43	71.7	0.20	
Loup *b*	.....	.....	.....	1.49	
Lynch*†[1]	100	45	73.5	1.73	
Lyons	.....	.....	.....	4.00	
McCook*[1]	98	60	75.7	3.70	
Madison*[1]	98	46	71.9	4.19	
Madrid*†[5]	103	52	72.5	2.10	
Marquette*	98	54	.....	6.66	
Minden*[1]	96	50	72.2	3.22	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Nebraska—Cont'd.	°	°	°	*Ins.*	*Ins.*
Nebraska City *a*†[1]	90	57	71.2	6.15	
Nebraska City *b*[1]	96	56	73.8	6.02	
Nemaha City*[1]	98	59	73.8	6.44	
Nesbit†	104	50	77.6	1.92	
Norfolk†	94	43	74.0	4.19	
North Loup†	97	47	70.8	4.98	
Oakdale†	99	45	71.7	5.07	
Odell*[5]	98	54	77.4	8.59	
Omaha*[1]	96	56	74.5	6.72	
O'Neill*[1]	100	49	71.8	2.88	
Osceola	.....	.....	.....	4.40	
Ord	99	48	73.9	2.43	
Ough†	.....	.....	.....	1.50	
Palmer *a*[1]	100	58	73.8	5.00	
Palmer *b*	.....	.....	.....	4.81	
Plattsmouth *a*†	.....	.....	.....	7.24	
Plattsmouth *b*[1]	99	60	78.3	7.24	
Potter*[1]	98	48	72.9	0.10	
Ravenna *a*	97	49	72.5	3.09	
Ravenna *b*[1]	98	58	75.5	2.99	
Red Cloud *a*	.....	.....	.....	4.47	
Red Cloud *b*[1]	101	60	76.7	2.70	
Republican	.....	.....	.....	1.51	
St. Paul*[1]	97	50	73.4	4.12	
Salem*[1]	94	54	75.4	9.65	
Santee Agency†	103	46	75.4	1.80	
Schuyler	.....	.....	.....	4.42	
Seneca*[1]	100	52	74.0	0.94	
Seward*[5]	98	56	77.4	5.19	
Spencer	.....	.....	.....	1.65	
Springfield*[1]	96	54	72.9	5.70	
Springview	103	39	71.3	1.73	
Stanton*[1]	97	50	70.9	4.42	
State Farm	102	49	75.0	3.86	
Strang*[1]	98	60	78.8	4.13	
Superior*[5]	98	56	75.8	6.90	
Sutton	94	50	70.6	7.99	
Syracuse	.....	.....	.....	2.65	
Tecumseh *a*†	97	48	73.6	6.03	
Tecumseh *b*†	.....	.....	.....	5.72	
Tekamah	101	48	73.3	4.70	
Thedford*[1]	103	52	73.3	1.65	
Turlington†	102	51	73.6	2.98	
Wakefield	.....	.....	.....	2.82	
Weeping Water[1]*	94	48	69.6	3.04	
Weston*[5]	98	60	76.4	5.90	
Whitman*[1]	98	50	70.8	0.69	
Wilber*[1]	100	54	74.8	6.62	
Wilcox	.....	.....	.....	3.37	
Wilsonville*[1]	104	58	72.9	2.29	
Woodlawn	.....	.....	.....	2.98	
York*[1]	98	56	77.4	4.44	
Nevada.					
Austin	93	39	67.7	0.14	
Battle Mountain*[1]	101	52	71.0	0.00	
Belmont	90	36	66.6	0.01	
Beowawe*[1]	103	48	71.8	T.	
Candelaria	100	44	75.4	T.	
Carlin*[1]	92	24	63.9	0.50	
Carson City	98	34	65.0	0.04	
Cloverdale	.....	.....	.....	T.	
Clover Valley†	.....	.....	.....	0.60	
Cortez†	.....	.....	.....	T.	
Cranes Ranch	.....	.....	.....	0.14	
Darrough Ranch	.....	.....	.....	T.	
Downeyville	111	45	79.0	T.	
Elko*[5]	99	45	70.6	0.27	
Elko (near)	102	24	65.4	1.60	
Ely	95	30	65.8	0.65	
Empire Ranch†	108	39	75.8	0.19	T.
Fenelon*[1]	99	40	67.7	0.30	
Genoa	97	50	70.3	.....	
Golconda*[1]	100	50	72.4	0.00	
Halleck*[1]	102	40	66.3	0.50	
Hawthorne *a*[5]	97	52	78.0	0.06	
Hawthorne *b*	102	39	73.5	0.06	
Hot Springs*[1]	102	54	79.2	T.	
Humboldt*[1]	98	45	71.3	0.00	
Las Vegas	100	49	78.4	0.00	
Lewers Ranch	99	36	67.8	0.10	
Lovelock*[1]	104	58	76.4	0.00	
Mill City*[1]	109	48	69.6	.....	
Osceola†	96	48	73.6	0.18	
Palisade*[1]	104	45	77.6	0.00	
Palmetto	97	29	65.4	0.01	
Paradise Valley	.....	.....	.....	T.	
Reno*[5]	100	48	74.6	0.15	
Reno State University	97	35	66.5	0.02	
Reese River	.....	.....	.....	T.	
Ruby Valley†	.....	.....	.....	0.06	
St. Clair	96	45	69.3	T.	
St. Thomas	112	50	88.4	T.	
Silver Peak	104	45	77.2	0.06	
Stofiel	96	28	61.8	0.59	
Sunnyside	103	38	76.5	0.09	
Tecoma*[1]	98	60	76.1	T.	
Toano*[1]	96	38	71.0	0.90	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Nevada—Cont'd.	°	°	°	*Ins.*	*Ins.*
Tybo	96	38	70.8	0.05	
Verdi*[1]	100	40	67.0	0.07	
Wadsworth*[1]	104	48	72.4	0.05	
Wells	98	30	65.1	0.59	
New Hampshire.					
Alstead*[6]	84	42	67.8	1.98	
Belmont	.....	.....	.....	3.73	
Berlin	88	35	62.0	.....	
Berlin Mills	85	39	61.6	4.30	
Bethlehem	84	40	63.8	4.47	
Brookline*[1]	86	48	68.6	2.76	
Concord	89	38	66.1	3.85	
Dublin	90	40	65.8	4.62	
Grafton	85	35	64.4	3.90	
Hanover	83	38	65.0	3.40	
Keene	87	35	65.5	3.91	
Lakeport	.....	.....	.....	4.25	
Lancaster	.....	.....	.....	3.88	
Mine Falls	.....	.....	.....	3.25	
Nashua	91	41	68.8	3.36	
Newton	88	39	67.2	2.69	
North Conway	85	43	65.4	2.68	
Pennichuck Station	.....	.....	.....	3.19	
Peterboro	88	41	64.8	2.67	
Plymouth	90	42	65.1	3.99	
Sanbornton†	83	40	64.2	4.40	
Stratford	93	37	65.7	4.40	
Sugar Hill	79	41	63.0	.....	
Weirs Bridge	.....	.....	.....	3.94	
West Milan	85	36	59.6	3.67	
Wolfboro	.....	.....	.....	4.80	
New Jersey.					
Allaire	94	42	73.4	.....	
Asbury Park	96[f]	53[f]	72.8[f]	0.99	
Barnegat	99	51	74.9	0.68	
Bayonne	95	48	75.6	5.06	
Beachhaven	95	59	75.1	0.55	
Belvidere	94	43	72.1	3.32	
Beverly†	99	49	76.4	1.89	
Billingsport	96	56	76.4	0.78	
Blairstown	97	47	76.1	2.75	
Boonton	94	43	73.2	2.36	
Bridgeton	97	56	78.2	0.71	
Camden	98	52	75.7	1.22	
Cape May	95	56	75.8	0.86	
Cape May C. H.†	93	55	76.0	2.20	
Charlotteburg	89	35	67.5	2.38	
Chester	88	44	70.3	4.66	
Deckertown	92	40	71.2	3.91	
Dover	93	40	71.9	2.37	
Egg Harbor City	97	47	75.0	0.52	
Elizabeth†	93	47	74.4	4.80	
Englewood	92	43	72.6	3.45	
Franklin Furnace	92	39	70.4	2.63	
Friesburg	.....	.....	.....	1.39	
Gillette	94	42	71.2	4.06	
Hammonton	.....	.....	.....	1.30	
Hanover	89	45	71.2	3.90	
Hightstown	94	47	75.8	1.31	
Imlaystown	96	49	76.6	0.66	
Junction	.....	.....	.....	3.36	
Lambertville	95	45	75.4	4.08	
Millville	100	51	77.9	1.75	
Moorestown	97	50	76.4	0.63	
Newark *a*	90	51	74.4	3.92	
Newark *b*	92	52	75.2	3.41	
New Brunswick *a*	96	47	75.4	4.50	
New Brunswick *b*	92	46	72.6	4.42	
Newton	91	34	66.9	3.33	
Ocean City	96	57	74.7	0.16	
Oceanic	93	57	76.8	3.10	
Paterson	91	48	73.6	4.37	
Perth Amboy	94	49	75.0	3.75	
Plainfield	96	46	75.4	2.66	
Rancocas*	98	56	.....	0.87	
Readington*[6]	98	56	78.1	.....	
River Vale	91	39	71.4	3.79	
Somerville	102	45	76.4	2.91	
South Orange	91	47	73.0	4.54	
Toms River	100	41	75.1	0.35	
Trenton	98	51	78.8	2.19	
Vineland	100	46	77.4	0.79	
West Summit	89	44	71.1	.....	
Whiting	98	46	75.8	1.05	
Woodbine	98	45	74.9	0.02	
New Mexico.					
Albert†	93	51	74.4	2.24	
Albuquerque†	91	58	73.6	0.80	
Alma†	94	53	73.2	2.03	
Aztec†	98	54	74.0	0.43	
Bernalillo†	93	58	74.2	1.54	
Chama	92	43	66.1	3.05	
Deming*[8]	96	71	83.8	0.35	
Downs Ranch	95	49	73.9	3.05	
East Las Vegas†	83	49	63.4	5.32	
Eddy†	97	56	80.5	2.09	
Engle†	97	53	75.4	2.31	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
New Mexico—Cont'd.	°	°	°	*Ins.*	*Ins.*
Espanola †	93	51	71.3	0.84	
Fort Bayard	91	51	70.4	2.09	
Fort Stanton †	89	49	67.0	1.61	
Fort Union †	84	46	65.1	2.72	
Fort Wingate	96	45	70.5	2.70	
Galisteo †	89	53	71.2	2.13	
Gallinas Spring †	90	55	72.5	3.10	
Gila	98	60	78.3	3.14	
Las Cruces	94	53	74.8	2.19	
Lordsburg *[8]	95	66	77.4	0.45	
Los Lunas †	95	51	73.8	.....	
Lower Penasco †	91	52	70.5	3.92	
Monero †	88	40	62.5	2.53	
Ocate †	84	43	63.6	3.89	
Ollo	99	48	73.1	0.16	
Pecos	.....	.....	.....	3.19	
Puerto de Luna †	94	59	75.1	4.67	
Raton †	92	44	69.2	0.12	
Rincon †	98	44	77.3	2.71	
San Marcial †	90	50	71.0	4.26	
Taos †	95	42	68.6	2.20	
New York.					
Addison	91	37	68.1	3.82	
Alfred Center	89	40	68.4	4.27	
Angelica †	91	32	65.0	3.96	
Appleton	86	41	67.4	2.20	
Arcade	90	38	65.9	5.71	
Arkwright	83	46	66.4	.....	
Atlanta	.....	.....	... ...	5.80	
Baldwinsville	91	46	69.9	2.48	
Bedford	88	41	70.6	3.68	
Big Sandy *[10]	87	46	68.5	.....	
Binghamton †	92	35	68.6	3.39	
Bloomville	.....	.....	.....	3.15	
Brentwood	90	41	71.0[e]	3.30	
Brookfield	84	44	68.2	3.43	
Brooklyn	90	58	76.1	3.62	
Charlotte *[10]	82	36	64.3	.....	
Cherry Creek	.....	.....	.....	6.43	
Cooperstown †	83	42	65.8	7.15	
Cortland	90	35	66.7	5.55	
De Kalb Junction	.....	.....	.....	4.84	
Demster	.....	.....	.....	3.77	
Deposit	.....	.....	.....	4.32	
Elmira *† [1]	92	46	71.9	4.04	
Fleming	89	45	69.6	3.03	
Fort Niagara †	91	43	69.8	1.69	
Friendship	92	33	66.2	3.74	
Glens Falls	86	38	67.0	4.98	
Gloversville	87	37	66.0	5.15	
Hamilton	92	33	66.0	4.14	
Haskinville	.....	.....	.....	4.09	
Honeymead Brook	91	40	69.8	1.73	
Humphrey	88	39	66.2	3.71	
Ithaca	89	41	69.2	4.12	
Kings Station	.....	.....	.....	3.86	
Lebanon Springs	93	36	67.2	2.84	
Le Roy	86	44	66.4	1.65	
Lowville	87	35	64.8	3.93	
Lyons	89	46	68.8	3.69	
Madison Barracks †	92	39	67.6	3.08	
Malone	87	38	64.7	7.75	
Manhattan Beach †	83	54	70.4	2.64	
Massena	85	38	64.1	5.82	
Mount Morris	91	40	68.0	3.41	
Newark Valley	.....	.....	.....	4.13	
New Lisbon	89	32	64.9	5.76	
North Hammond †	86	42	68.0	3.48	
Number Four †	85	33	62.4	5.82	
Ogdensburg	90	44	67.6	2.61	
Oneonta	94	36	68.9	3.77	
Oxford	92	34	67.4	4.59	
Palermo †	92	37	67.5	3.61	
Perry City	89	35	66.6	4.67	
Pine City	.....	.....	.....	3.98	
Pittsford	92	42	68.0	3.67	
Plattsburg Barracks	81	40	65.5	4.80	
Port Jervis	89	40	69.9	8.14	
Poughkeepsie	93	37	71.2	3.49	
Rome	86	43	66.6	3.49	
Romulus	92	45	69.6	3.90	
Rose †	.....	... ...	.....	3.17	
Saranac Lake	87	30	62.6	4.61	
Scottsville	.....	.....	.....	4.86	
Setanket †	86	55	72.2	5.02	
Sherwood	.....	.....	.....	5.36	
Skaneateles	.....	.....	.....	4.28	
South Canisteo	90	34	65.9	3.88	
South Kortright †	89	30	64.6	4.68	
Turin	85	38	64.0	4.42	
Tyrone	.....	.....	.....	4.60	
Varysburg	93	39	67.3	3.56	
Wappingers Falls	90	44	72.2	2.96	
Warwick	.....	.....	.....	3.30	
Watertown	93	40	68.0	4.58	
Waverly †	93	34	69.6	3.67	
Wedgwood	91	42	69.0	3.27	
New York—Cont'd.	°	°	°	*Ins.*	*Ins.*
West Point †	92	52	72.0	3.42	
Willets Point	93	49	73.9	4.55	
North Carolina.					
Asheville †	89	48	72.0	5.08	
Bakersville	88	40	69.9	5.57	
Blowing Rock †	82	41	66.0	5.88	
Bryson City †	.....	.....	.....	6.56	
Chapel Hill †	98	55	78.1	4.46	
Currituck Inlet †	.....	.....	.....	5.25	
Experimental Farm [7]	94	60	78.2	3.53	
Fair Bluff †	.....	.....	.....	11.42	
Falkland *[1]	93	64	75.7	7.30	
Fayetteville †	92	62	78.0	6.56	
Flat Rock	88	45	70.6	5.04	
Goldsboro †	97	57	79.8	7.71	
Greensboro †	94	56	76.5	5.37	
Greenville	.....	.....	.....	6.85	
Henderson †	95	57	78.2	2.95	
Highlands	82	45	66.4	8.70	
Horse Cove †	88	53	71.6	12.54	
Lenoir *† [1]	88	56	73.6	7.41	
Linville †	78	38	65.0	6.89	
Littleton †	97	53	77.6	4.99	
Louisburg †	96	55	77.4	3.81	
Lumberton †	94	58	79.4	8.47	
Lynn *† [2]	92	.....	73.7	11.06	
Mocksville †	90	55	75.5	3.67	
Moncure †	94	58	76.5	6.47	
Morganton *† [1]	92	57	73.8	3.99	
Mount Airy †	93[e]	48[e]	73.0[e]	5.27	
Mount Pleasant	94	55	77.3	4.97	
Murphy †	.....	.....	.....	3.50	
Newbern †	97	60	80.2	4.54	
Oak Ridge †	97	52	75.6	3.62	
Pantego	.....	.....	.....	4.00	
Pittsboro	92	53	74.8	5.86	
Raleigh *† [1]	93	65	79.3	.....	
Rockingham †	97	58	80.2	6.37	
Roxboro †	97	53	77.6	2.33	
Rutherfordton †	87	52	73.0	4.77	
Salem	98	51	77.5	.....	
Salisbury	93	50	78.9	3.48	
Saxon †	97	48	76.8	4.23	
Selma	96	55	77.4	6.26	
Settle	97	50	76.8	2.99	
Skyuka	.....	.....	.....	10.67	
Sloan †	95	57	78.4	8.79	
Soapstone Mount †	94	50	74.8	5.54	
Southern Pines †	98	63[j]	79.0*	5.99	
Southport †	95	65	79.4	6.40	
Tarboro	98	54	78.6	7.44	
Waynesville †	89	45	70.4	7.05	
Weldon †	96	56	78.0	4.07	
Willeyton	95	57	77.6	3.66	
North Dakota.					
Ashley †	104	34	66.1	1.19	
Berlin	101	37	65.7	1.21	
Bottineau	93	28	61.7	1.00	
Churchs Ferry	96	30	63.3	2.20	
Coal Harbor	95	36	66.0	0.62	
Dickinson †	98	24	64.5	0.51	
Ellendale [4]	103	40	70.1	1.36	
Fargo †	92	30	64.1	1.59	
Forman †	103	29	64.8	1.65	
Fort Berthold †	100	34	69.3	0.28	
Fort Yates †	100	34	68.5	0.36	
Gallatin †	100	26	64.6	1.06	
Grafton †	98	34	62.7	1.35	
Jamestown †	93	46	68.2	1.28	
Lakota	93	33	61.6	2.03	
Larimore †	97	33	66.7	0.95	
McKinney	88	30	63.4	1.45	
Milton †	89	31	63.4	2.68	
Minto †	99	34	65.4	0.67	
Napoleon †	97	30	67.2	1.16	
New England City † [4]	100	38	64.4	0.00	
Oakdale †	93	36	64.8	0.95	
Portal †	97	32	63.1	3.25	
Power †	90	34	66.0	2.94	
St. John †	84	35	61.1	2.13	
Sheyenne	94	30	63.7	3.65	
Steele †	97	29	65.8	0.68	
University †	93	33	62.7	1.54	
Washburn	99	28	66.4	0.47	
Wild Rice † [3]	.....	.....	63.7	1.48	
Willow City †	93	27	62.3	2.00	
Woodbridge †	85	29	58.9	2.03	
Ohio.					
Akron	93	40	71.7	5.22	
Annapolis	96	41	70.2	4.01	
Arcanum	.....	.....	.....	1.72	
Ashland	92	43	70.9	3.07	
Ashtabula	92	46	69.8	3.15	
Atwater	.....	.....	.....	3.43	
Auburn	96	34	67.5	4.45	
Bangorville	95	48	72.6	4.06	
Bellefontaine	96	44	72.2	3.42	
Ohio—Cont'd.	°	°	°	*Ins.*	*Ins.*
Bement *[1]	85	40	66.4	7.99	
Benton Ridge	99	45	73.5	2.83	
Bethany	100	44	75.3	2.34	
Big Prairie	96	47	71.2	2.52	
Binola	94	54	74.0	5.36	
Bissells	91	45	69.6	6.14	
Bladensburg	96	43	71.1	3.44	
Bloomingburg	96	48	74.9	0.84	
Bloomington	.....	.....	.....	1.01	
Bowling Green	96	40	72.1	2.49	
Bucyrus	99	50	72.5	3.50	
Cambridge	95	41	72.0	3.29	
Camp Dennison	103	50	78.1	1.94	
Canton †	93	46	72.1	4.81	
Cardington	97	40	70.0	2.90	
Carrollton	.....	43	.....	2.79	
Cedarville	94	56	77.3	0.70	
Celina	98	50	75.1	1.31	
Cherry Fork	101	43	75.6	1.77	
Circleville *a* †	.....	.....	.....	1.50	
Circleville *b*	100	48	76.2	1.74	
Clarksville	96	44	74.4	1.59	
Cleveland	92	48	70.4	4.03	
Clifton	103	43	76.1	1.44	
Coalton	100	39	75.5	1.85	
Colebrook	92	37	69.8	3.99	
Cynthiana *	100	45	75.4	.....	
Dayton *a*	98	51	76.5	3.05	
Dayton *b* †	.....	.....	.....	2.25	
Demos	93	50	74.1	6.53	
Dupont	94	46	74.1	3.01	
Ellsworth	95	38	70.9	2.68	
Elyria	99	45	74.0	5.53	
Fairport Harbor *[10]	94	56	71.8	.....	
Fayetteville	95	44	74.4	1.32	
Findlay	95	46	71.7	2.22	
Fostoria	92	52	73.5	0.68	
Frankfort	94	45	73.6	3.38	
Garrettsville	94	35	69.6	2.87	
Granville	99	41	70.6	3.43	
Gratiot	94	45	72.7	4.02	
Greenfield	95	48	75.2	1.70	
Greenhill	96	38	70.1	4.02	
Greenville	92	47	72.6	1.53	
Hackney	94[f]	48[f]	73.6[f]	3.50	
Hanging Rock	97	46	74.4	4.36	
Hebbardsville	100	49	77.4	3.60	
Hedges	99	43	74.5	3.15	
Hillhouse	92	44	69.6	3.33	
Hillsboro	101	43	74.9	2.76	
Hiram	92	46	70.4	3.16	
Hudson	96	41	70.8	5.91	
Jacksonboro	101	51	78.1	2.55	
Kenton †	100	47	76.0	1.22	
Killbuck	100	46	76.3	4.27	
Leipsic	97	42	71.1	2.94	
Levering	99	35	68.8	3.48	
Logan	100	43	74.7	6.52	
Lordstown	95	34	69.0	2.90	
McArthur	101	43	74.1	2.50	
McConnelsville	97	46	74.7	3.85	
Marietta *a* †	.....	.....	.....	2.64	
Marietta *b*	97	48	75.0	2.62	
Marion	98	44	72.9	1.80	
Medina	95	43	71.5	4.21	
Milfordton	101	44	72.5	2.68	
Milligan	100	39	73.6	3.75	
Millport	92	.....	.....	5.10	
Montpelier	95	44	71.4	4.52	
Napoleon	97	45	72.4	1.74	
New Alexandria	93	49	73.1	4.06	
New Berlin	96	43	72.2	5.48	
New Bremen	98	44	74.3	2.20	
New Comerstown	96	45	72.2	2.68	
New Holland	95	46	74.5	2.83	
New Moscow	.....	.....	.....	4.95	
New Paris	102	52	77.9	1.87	
New Waterford	93	.....	.....	5.00	
North Lewisburg	99	44	73.3	2.00	
North Royalton	94	46	71.5	5.19	
Norwalk	96	.....	.....	4.13	
Oberlin	98	45	72.3	3.64	
Ohio State University	98	45	73.8	1.47	
Orangeville	92	35	69.3	3.35	
Ottawa	95	43	71.5	2.88	
Pataskala	99	44	74.0	3.10	
Peoli	95	48	73.9	3.25	
Philo	96	51	75.1	4.13	
Plattsburg	97	46	73.4	1.31	
Point Marblehead *[10]	85	63	74.5	.....	
Pomeroy	97	48	74.6	2.55	
Portsmouth *a* †	.....	.....	.....	2.99	
Portsmouth *b*	97	50	76.3	2.99	
Richwood	98	65	80.0	2.26	
Ridgeville Corners	96	44	72.5	2.44	
Ripley	96	46	75.7	2.53	
Rittman	95	41	70.4	4.06	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Ohio—Cont'd.	°	°	°	*Ins.*	*Ins.*
Rocky Ridge	98	47	73.2	2.20	
Rosewood	95	45	72.6	2.88	
Sharon Center	98	57	78.5	3.85	
Shenandoah	96	45	71.8	2.92	
Springboro	.....	.....	.....	2.22	
Steuben	.....	.....	.....	3.16	
Stoutsville	.....	.....	.....	3.21	
Sylvania	100	42	72.1	3.50	
Thurman	103	46	76.9	1.65	
Tiffin†	91	50	73.0	1.77	
Upper Sandusky	92	44	72.5	2.76	
Vanceburg	99	47	76.4	2.45	
Van Wert	98	45	73.2	1.84	
Vermilion	94	47	71.3	3.87	
Vickery	95	50	72.5	1.77	
Walnut	.....	.....	.....	2.11	
Warren	95	34	70.0	2.28	
Wauseon	99	45	73.1	2.82	
Waverly	100	46	76.9	1.76	
Waynesville	.....	.....	.....	2.43	
Wellington	95	45	73.2	4.94	
Westerville	95	46	72.9	3.69	
Wheeler†	.....	.....	.....	2.80	
Willoughby	.....	.....	.....	2.30	
Wooster*a*	94	42	70.9	2.30	
Youngstown	96	40	69.9	3.15	
Zanesville†	.....	.....	.....	3.55	
Oklahoma.					
Alva†	104	62	80.1	6.25	
Anadarko	106	63	83.3	2.88	
Arapaho†	100	62	79.4	5.46	
Britton†	.....	.....	.....	5.93	
Burnett†	97	58	80.0	4.55	
Clifton†	98	64	80.0	5.90	
Enid†	104	61	81.2	6.68	
Fort Reno†	101	61	80.4	4.45	
Fort Sill	101	66	80.9	2.10	
Guthrie†	99	64	81.2	7.99	
Hennessey	.....	.....	.....	4.72	
Keokuk Falls†	98	60	79.2	8.30	
Mangum†	105	57	79.4	2.82	
Norman†	105	63	82.3	5.43	
Ponca†	101	59	79.6	5.72	
Pond Creek†	100	56	78.7	3.27	
Prudence†	.....	.....	.....	5.26	
Sac and Fox Agency†	99	60	78.7	10.10	
Stillwater†	97	60	79.8	4.97	
Winnview†	101	61	79.2	5.71	
Oregon.					
Albany *a*†	101	42	65.8	0.15	
Arlington†	101	47	72.3	0.09	
Ashland *b*	104	38	66.8	0.06	
Aurora*s*	97	45	68.7	0.33	
Aurora (near)	97	38	63.6	0.33	
Bandon	67	47	56.6	0.04	
Beulah†	97	35	66.0	0.29	
Brownsville*s*	102	50	68.5	0.06	
Burns	97	18	58.7	.....	
Canyon City†	104	41	70.2	0.35	
Comstock*s*	97	42	65.1	0.05	
Condon	97	33	65.4	0.73	
Corvallis *a*	96	40	64.6	T.	
Corvallis (near)	100	43	67.2	0.11	
Dayville†	99	39	67.0	0.14	
Detroit†	105	37	66.0	0.30	
Eugene†	93	45	65.4	T.	
Fife†	96	32	61.6	0.87	
Glenora	100	32	61.4	0.27	
Grants Pass *a*†	105	37	67.0	0.29	
Happy Valley†	98	28	63.2	0.12	
Heppner†	95	41[d]	67.0	0.69	
Hood River (near)	91	42	63.4	0.15	
Hubbard	98	37	63.4	0.46	
Irvington*	91	45	.....	1.00	
Jacksonville	102	41	68.0	0.04	
Joseph†	91	35	61.7	0.42	
Junction City*s*	102	42	66.8	0.02	
Klamath Falls	97	39	67.4	0.45	
Lafayette*s*	105	48	68.0	0.04	
La Grande†	97	40	67.0	0.22	
Lakeview†	95	39	65.2	0.45	
Langlois	84	40	59.0	0.05	
Lone Rock	94	28	60.4	0.17	
Lorella	104	36	66.5	0.08	
McMinnville *a*†	101	36	65.8	0.40	
McMinnville *b***	102	42	66.5	0.27	
Merlin*s*	106	46	68.8	0.00	
Monmouth*s*	100	48	69.7	0.10	
Mount Angel†	100	40	67.2	0.00	
Mount Hood	73	35	54.7	.....	
Nehalem	.....	.....	.....	0.80	
New Bridge	100	44	72.0	0.01	
Newport	77	38	55.3	0.34	
Pendleton	105	40	69.8	0.07	
Riddles*s*	102	40	64.6	0.00	
Salem *a***	95	54	67.9	0.15	
Salem *b*†	98	43	60.1	0.23	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Oregon—Cont'd.	°	°	°	*Ins.*	*Ins.*
Salmon	90	32	57.0	.....	
Sheridan*s*	100	47	67.6	0.16	
Silverton*s*	98	48	65.6	0.38	
Siskiyou*s*	100	50	70.3	0.00	
Sparta	92	37	67.0	0.47	
Springbrook	99	45	67.7	0.37	
Springfield*s*	99	44	66.9	0.00	
The Dalles†	98	48	70.5	0.05	
Tillamook Rock L. H.†	.....	.....	.....	0.48	
Umatilla†	.....	.....	.....	0.00	
Vale	98	35	67.8	0.32	
West Fork*s*	108	48	68.6	0.16	
Weston	99	40	65.8	T.	
Williams	100	35	64.8	0.00	
Pennsylvania.					
Altoona*	92	46	72.7	1.64	
Aqueduct	101	42	74.2	2.39	
Beaver Dam†	.....	.....	.....	4.35	
Bethlehem	.....	.....	.....	2.96	
Blooming Grove*1	92	45	69.1	2.80	
Brookville†	.....	.....	.....	2.43	
Browers Lock	.....	.....	.....	2.29	
Cameron	.....	.....	.....	2.64	
Carlisle	99	45	74.8	4.70	
Cassandra	93	42	68.8	2.27	
Center Hall	.....	.....	.....	4.70	
Chambersburg†	95	45	71.5	5.31	
Clarion†	.....	.....	.....	3.55	
Coatesville	98	46	74.9	2.65	
Confluence†	.....	.....	.....	3.75	
Coopersburg	95	48	74.3	3.29	
Davis Island Dam†	.....	.....	.....	3.73	
Doylestown	.....	.....	.....	2.89	
Drifton	92[4]	38[4]	68.6[4]	3.35	
Driftwood	.....	.....	.....	2.53	
Dubois†	.....	.....	.....	2.54	
Duncannon	.....	.....	.....	2.01	
Dyberry†	92	32	67.4	3.64	
East Bloomsburg	.....	.....	.....	2.59	
East Mauch Chunk	97	36	71.0	2.12	
Easton	92	46	73.1	2.29	
Edinboro*1	88	41	68.2	.....	
Ellwood Junction†	.....	.....	.....	3.34	
Emporium	90	40	68.6	2.98	
Farrandsville	.....	.....	.....	4.96	
Forks of Neshaminy*1	90	56	73.4	4.26	
Frederick	.....	.....	.....	3.85	
Freeport†	.....	.....	.....	3.18	
Gettysburg†	99	46	74.4	2.27	
Girardville	.....	.....	.....	4.69	
Grampian	94	42	69.7	3.08	
Greensboro†	.....	.....	.....	4.27	
Hamburg	97	44	74.8	2.42	
Hollidaysburg	96	43	72.0	2.03	
Huntingdon *a*†	98	38	72.0	1.46	
Huntingdon *b*	.....	.....	.....	3.18	
Johnstown†	.....	.....	.....	3.39	
Karthaus	.....	.....	.....	2.22	
Keating	.....	.....	.....	4.26	
Kennett Square	96	47	74.1	2.93	
Lansdale	.....	.....	.....	2.95	
Lebanon	100	43	74.6	1.97	
Le Roy†	89	44	69.0	3.81	
Lewisburg	96	40	72.4	4.22	
Lock Haven†[4]	97	43	73.4	3.27	
Lock No. 4†	.....	.....	.....	2.36	
Lycippus	91	51	72.1	3.94	
Mahoning†	.....	.....	.....	3.24	
Mifflin	.....	.....	.....	1.62	
Nisbet	.....	.....	.....	3.64	
Oil City†	.....	.....	.....	3.09	
Ottsville	.....	.....	.....	3.98	
Parker†	.....	.....	.....	2.97	
Philadelphia *a*	.....	.....	.....	0.58	
Philadelphia *b*	97	56	77.1	0.52	
Philadelphia *c*	95	52	76.9	0.37	
Point Pleasant	.....	.....	.....	6.67	
Pottstown	96	48	75.8	4.42	
Quakertown	97	43	72.6	2.13	
Reading[5]	.....	.....	73.2	3.44	
Renovo	.....	.....	.....	5.22	
Ridgway†	.....	.....	.....	2.52	
Saegerstown	91	34	67.1	6.08	
Salem Corners	91	40	70.6	3.32	
Saltsburg†	.....	.....	.....	3.10	
Seisholtzville	.....	.....	.....	2.88	
Selinsgrove	94	40	72.0	4.58	
Sinnamahoning	.....	.....	.....	3.40	
Smethport	90	34	66.4	3.27	
Smiths Corners	.....	.....	.....	4.94	
Somerset	95	42	69.7	2.79	
South Bethlehem	95	44	73.2	4.40	
South Eaton	90	39	69.2	2.07	
Spruce Creek	.....	.....	.....	5.21	
State College	91	44	69.5	3.70	
Stoyestown†	.....	.....	.....	2.80	
Towanda	90	35	69.6	2.49	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Pennsylvania—Cont'd.	°	°	°	*Ins.*	*Ins.*
Trout River	.....	.....	.....	3.71	
Uniontown	94	49	72.5	3.76	
Warren†	.....	.....	.....	4.05	
Wellsboro*†1	92	36	69.6	4.65	
West Chester	96	52	75.3	2.28	
West Newton†	.....	.....	.....	3.53	
White Haven	92	36	69.1	2.87	
Wilkesbarre†	97	40	72.0	4.97	
Williamsport	92	45	71.7	3.38	
York†	100	44	71.5	2.41	
Rhode Island.					
Bristol	.....	.....	.....	2.54	
Kingston	87	45	69.4	2.70	
Lonsdale	.....	.....	.....	2.44	
Pawtucket	87	46	70.7	2.40	
Providence *a*	88	52	74.3	2.71	
Providence *c*	88	48	70.9	2.93	
South Carolina.					
Allendale†	95	64	80.0	11.18	
Anderson†	.....	.....	.....	6.96	
Batesburg†	98	60	80.8	6.54	
Blackville†	94	65	80.4	9.70	
Camden†	.....	.....	.....	7.48	
Central†	94	55	77.5	7.07	
Cheraw *a*†	96	58	79.3	8.51	
Cheraw *b*†	94	62	78.9	9.63	
Conway†	.....	.....	.....	9.10	
Darlington*1*	96	70	80.2	.....	
Edisto†	.....	.....	.....	8.54	
Effingham†	.....	.....	.....	5.67	
Florence†	96	63	81.8	4.06	
Georgetown†	93	65	80.4	7.33	
Gillisonville†	101	62	81.1	7.02	
Greenville†	90	60	77.0	4.84	
Greenwood†	96	60	79.4	10.04	
Holland†	93	58	77.2	12.00	
Kingstree *a*†	95	67	81.4	9.04	
Kingstree *b*†	.....	.....	.....	6.22	
Little Mountain	97	63	79.0	4.91	
Longshore†	94	62	78.6	6.78	
McCormick*†1	97	62	77.8	.....	
Mount Carmel†	.....	.....	.....	11.33	
Pinopolis*1	88	69	78.0	11.58	
Port Royal†	95	71	82.9	6.07	
Red Hill*s*	.....	67	75.8	9.82	
Ridgeway†	93	61	78.0	7.81	
St. George†	94	64	80.3	7.49	
St. Matthews†	96	66	80.5	11.58	
St. Stephens†	.....	.....	.....	8.78	
Santuck†	94	62	77.9	7.11	
Shaws Fork*1	98	68	81.0	8.20	
Society Hill†	92	59	77.7	4.27	
Spartanburg†	99	57	79.5	6.18	
Statesburg†	91	64	78.4	4.77	
Trenton	91	67	79.5	11.49	
Trial†	95	61	79.7	10.85	
Yemassee†	96	64	77.9	3.82	
Yorkville	93	60	77.8	4.69	
South Dakota.					
Aberdeen†	100	34	69.4	2.59	
Alexandria†	104	34	69.0	0.27	
Ashcroft†	106	33	67.6	1.37	
Bowdle*†1	98	39	69.9	1.04	
Brookings†	93	36	67.4	2.15	
Castlewood†	98	32	67.3	1.37	
Cross†	94	37	62.6	1.16	
De Smet†	.....	.....	.....	3.91	
Farmingdale	.....	.....	.....	0.50	
Faulkton†	102	37	68.6	1.13	
Flandreau†	99	34	69.2	1.48	
Forestburg†	101	33	70.9	1.66	
Forest City†	102	48	73.4	0.65	
Fort Meade	100	46	70.9	0.95	
Gary†	98	40	68.0	2.61	
Greenwood	103	45	74.7	1.57	
Highmore†	104	41	72.4	1.06	
Hitchcock	.....	.....	.....	0.30	
Hotch City†	105	43	72.3	1.51	
Howard†	99	38	69.2	2.25	
Ipswich*1	106	44	69.6	0.57	
Kimball†	101	43	72.2	1.54	
Leslie†	108	41	75.2	0.55	
Mellette†	104	34	72.1	0.98	
Millbank†	97	34	66.8	0.40	
Northville*1	108	33	70.5	1.20	
Nowlin†	109	38	72.3	0.07	
Parker†	102	42	71.0	0.75	
Parkston†	101	38	69.8	1.29	
Plankinton†	99	42	71.4	0.97	
Rosebud†	103	45	71.6	0.86	
Shiloh†	108	35	71.0	0.50	
Silver City	.....	.....	.....	0.78	
Sioux Falls†	98	36	69.7	0.48	
Tyndall†	98	45	72.9	1.52	
Watertown†	98	25	64.5	1.30	
Webster†	99	36	67.3	1.79	
Wentworth†	96	36	69.2	3.20	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
South Dakota—Cont'd.	°	°	°	*Ins.*	*Ins.*
Wessington Springs†	99	46	71.8	2.83	
Yankton	99	47	72.9	1.05	
Tennessee.					
Andersonville *[1]	93	51	74.4	3.75	
Arlington†	96	62	78.9	0.49	
Ashwood *†[1]	92	58	76.1	3.07	
Bolivar†	96	62	79.8	0.95	
Bristol	90	46	71.8	4.12	
Brownsville†	97	56	80.6	1.36	
Byrdstown †	91	55	76.4	4.30	
Carthage†				4.22	
Clinton†				4.29	
Columbia†				2.32	
Covington δ†	98	53	80.0	1.08	
Dyersburg†	96	56	81.1	1.99	
Elizabethton†	93	49	76.0	2.89	
Fairmount *[1]	84	64	72.7		
Florence †	91	56	77.1	3.13	
Greeneville†	91	49	73.9	2.96	
Hohenwald *†[3]		60	72.8	2.81	
Jacksboro *[4]	90	51	72.3	3.50	
Jackson†	94	56	77.8	5.37	
Johnsonville†				0.99	
Loudon				4.25	
Lynnville *[1]	95	57	76.3	8.20	
McMinnville†	91	52	75.4	2.30	
Milan†	98	54	78.2	1.87	
Mount Carmel	92	60	77.7	0.50	
Newport *[3]	92	55	75.0	6.42	
Nunnelly *[1]	92	59	76.9	1.34	
Palmetto†				1.55	
Riddleton†	91	52	74.8	2.99	
Rockwood †				3.42	
Rogersville *[1]	91	58	75.6	2.24	
Rugby *[1]	89	60	74.6	2.10	
Savannah	95	63	80.8	3.25	
Springdale *[1]	94	58	76.5	2.00	
Trenton	94	54	82.3	0.03	
Tullahoma *†[1]	88	48	71.1	3.30	
Waynesboro *[1]	94	52	73.2	2.96	
Texas.					
Albany *†[1]	94	62	76.5	1.34	
Angleton	100	64	81.2	4.49	
Arthur City†				2.53	
Aurora *[1]	100	66	81.4	0.75	
Austin *a*†	101	71	85.2	1.10	
Austin δ *[5]	100	71	84.5		
Ballinger†	100	62	80.2	2.37	
Beeville †	106	71	87.4	2.74	
Belton†	102	69	86.8	0.96	
Boerne *†[1]	104	74	84.2	1.22	
Brady †[6]	103	66	80.4	1.15	
Brazoria†	96	69	82.8	4.26	
Brenham†	100	71	85.4	0.88	
Burnet *†[1]	99	73	84.8	3.92	
Camp Eagle Pass†	107	71	87.4	3.32	
Chillicothe	102	46	79.1	1.00	
Coleman *[3]		68	78.0	5.61	
College Station	99	70	82.4	2.81	
Columbia†	97	68	83.1	4.63	
Corsicana *a*	104	66	85.0	0.86	
Corsicana δ†	102	61	82.4	1.63	
Cuero†	101	72	86.0	0.22	
Dallas†	100	64	83.0	1.54	
Deant	100	48	74.2	5.39	
Durham†				0.55	
Duval *[1]	110	75	87.8	1.20	
Estelle†	100	66	83.9	1.18	
Forestburg†	94	64	78.6	0.92	
Fort Brown†	100	63	85.3	2.98	
Fort Clark	105	68	86.6	1.96	
Fort Hancock	100	53	77.0	2.38	
Fort McIntosh	103	70	86.9	2.34	
Fort Ringgold†	105	70	87.7	3.05	
Fort Stockton				6.26	
Fort Worth	101[4]	67[4]	84.7[4]	0.54	
Fredericksburg *†[1]	99	70	81.5	2.50	
Gainesville†	99	63	82.3	0.42	
Georgetown				2.19	
Golindo				1.90	
Graham†	103	58	82.0	1.64	
Grape Vine†	102	66	83.3	1.86	
Hale Center†	94	61	75.6	2.34	
Hallettsville†	103	70	85.4	1.01	
Happy †	97	58	75.3	5.03	
Haskell †	103	72	85.6	0.00	
Hearne † [6]	102	70	84.5	2.45	
Henrietta †	100	64	83.8	2.58	
Hewitt				4.10	
Houston †[7]	100	69	82.4	3.37	
Huntsville†	98	68	83.4	0.89	
Kent				4.36	
Kerrville†	105	62	81.6	2.60	
Lampasas†	106	66	83.8	1.55	
Leakey†	99	70	84.5	7.00	
Llano *†[3]	105	72	86.0	2.40	
Longview†	101	67	84.8	1.43	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Texas—Cont'd.	°	°	°	*Ins.*	*Ins.*
Lufkin†	100	68	85.6	1.94	
Luling†	102	72	84.9	2.31	
Marshall†	98	67	81.2	1.45	
Menardville *†[1]	96	69	80.1	1.78	
Midland†	104	55	78.2	1.69	
Mount Blanco *†[1]	97	67	77.2	1.10	
New Braunfels†	101	69	83.0	1.93	
Orange†	96	68	81.6	5.18	
Paris†	98	65	81.9	0.26	
Roby†	108	52	81.9	0.15	
Rockport *[1]	96	76	84.7		
Rock Springs *†[1]	101	71	81.0	1.64	
Round Rock				1.19	
Runge†	105	74	82.7	1.76	
San Antonio	104	70	85.6	2.11	
San Marcos *a*†				1.36	
San Marcos δ†	102	71	86.6	1.70	
Sherman [b]	96	72	83.4	1.18	
Sierra Blanca†	98	58	78.6	1.77	
Stafford	100	67	82.7	3.65	
Sulphur Springs†	104	64	85.0	0.85	
Temple†	102	69	84.4	3.10	
Twohig†	109	71	88.9	3.45	
Tyler†	98	64	81.8	0.71	
Waco†	102	69	84.6	3.74	
Weatherford†	100	64	82.2	4.43	
Wichita Falls†	102	65	85.0	0.72	
Utah.					
Blue Creek *[8]	97	60	78.5	0.00	
Brigham City				0.00	
Cisco†	104	54	79.0	0.34	
Corinne				0.00	
Deseret [c]	94	45	70.8	T.	
Fillmore†	106	39	73.4	0.97	
Fort Duchesne†	97	43	69.8	0.30	
Giles†	105	44	77.8	0.17	
Green River†	102	50	75.2	0.12	
Grouse Creek *†[1]	93	48	65.2	0.52	
Grover *†[1]	92	41	62.7	1.09	
Heber†	96	32	66.1	T.	
Huntsville				0.17	
Kelton *[8]	99	62	74.6	0.00	
Koosharem	93	39	64.3	1.42	
Levan†	95	56	76.2	1.04	
Loa	91	37	64.7	0.39	
Logan	92	45	72.0	0.18	
Manti†	110	38	72.0	0.76	
Millville†				0.04	
Moab†	99	54	77.4	0.11	
Moroni †				0.54	
Mount Pleasant *†[1]	95	54	72.6	0.22	
Ogden *a*[5]	95	60	76.4	0.10	
Ogden δ *[1]	91	62	78.6		
Orton†	98	32	65.8	0.58	
Pahreah†	100	45	74.3	1.50	
Parowan†	94	44	70.8	0.23	
Promontory *[8]	100	62	77.4	0.00	
Provo City[2]			67.8	0.21	
St. George†	113	45	80.5	0.00	
Scipio	94	38	68.4	0.28	
Snowville†	96	38	67.2	0.08	
Soldier Summit†	96	29	61.0	0.32	
Terrace				0.00	
Thistle†	99	36	67.0		
Vernal†	92	48	70.9	0.40	
Vermont.					
Brattleboro	89	37	68.2	2.40	
Burlington†	88	47	69.5	4.84	
Chelsea *[1]	83	43	63.0	3.49	
Cornwall	86	39	66.5	5.88	
Enosburg Falls†	86	35	63.4	3.37	
Hartland†	86	34	63.4	3.28	
Irasburg†	85	37	62.7	4.17	
Jacksonville	83	34	61.1	2.49	
Norwich				3.92	
St. Johnsbury	82	36	63.6	4.20	
Simonsville	83	31	64.2	4.13	
Strafford *†[1]	82	44	64.3	2.82	
Vernon *[6]	90	45	70.5	3.61	
Wells	85	38	66.0	5.07	
Woodstock	88	36	64.9	2.70	
Virginia.					
Abingdon†				3.73	
Alexandria	99	55	80.6	1.08	
Ashland†	98	53	76.9	0.49	
Bedford City	93	55	75.6	2.46	
Big Stone Gap†	90	43	70.2	5.35	
Birdsnest *†[1]	93	64	79.4	1.70	
Blacksburg	89	41	71.3	1.59	
Buchanan†				2.53	
Callaville†	93	54	75.4	3.40	
Charlottesville	96	53	76.8	2.51	
Christiansburg†				1.48	
Clarksville †				5.22	
Dale Enterprise†	94	44	73.0	1.54	
Danville†				2.23	
Fredericksburg†	95	55	76.8	1.69	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Virginia—Cont'd.	°	°	°	*Ins.*	*Ins.*
Grahams Forge	90[f]	46[f]	71·3[f]	4.72	
Hampton	94	63	79.2	2.18	
Hot Springs	90	54	71.0		
Irwin†	98	49	77.4	0.91	
Lexington †[j]	92	47	72.7	1.03	
Manassas	96	49	76.6	0.85	
Monterey†	84	44	66.9	2.08	
Nottoway	102	51	79.0	1.98	
Petersburg†	97	57	78.4	2.36	
Richmond (near)†	103	55	79.2	2.06	
Richmond δ†				2.93	
Rockymount†	94	54	75.8	1.75	
Salem†				4.66	
Saltville	89	48	71.6	6.30	
Smithville†	96	55	76.6	1.83	
Spottsville†	96	54	77.5	2.46	
Stanardsville†	96	50	74.7	3.09	
Staunton†	96	49	74.4	2.64	
Stephens City†	98[c]	52[c]	77.4[c]	2.06	
Sunbeam†	94	58	77.0	4.23	
Warsaw†	98	52	78.2	1.27	
Westbrook Farm	98	54	77.8		
Washington.					
Anacortes				0.26	
Ashford				0.10	
Blaine	89	34	58.6	0.40	
Bridgeport†	104	35	68.4	0.00	
Cascade Tunnel†	90	32	57.6	0.05	
Centerville	98	39	65.9	0.00	
Colfax†	94	35	63.6	0.03	
Connell	102	32	71.0	0.00	
Dayton	99	42	69.3	0.09	
East Sound	81	45	60.4	0.34	
Ellensburg (near)	102	40	70.0	T.	
Fort Simcoe	96	49	71.2	0.00	
Fort Spokane	100	35	67.0	0.00	
Grand Mound†	88[c]	34[c]	62.4[c]	0.01	
Hunters†	88	32	58.0	T.	
Kennewick †	101	44	71.6	0.08	
Lakeside†	95	48	71.4	0.00	
Madrone *†[1]	82	41	59.8	0.20	
Mayfield†	98	35	61.4	0.53	
Monte Cristo†	87	43	61.4	0.71	
Moxee Valley†	98	35	69.2	T.	
New Whatcom†	87	37	59.9	0.35	
Olga†	84	46	59.6	0.23	
Pine Hill†	99	41	67.6	0.12	
Pomeroy†	96	53	72.0	0.14	
Rosalia†	95	31	63.2	T.	
Silver Creek *[1]	94	37	59.8	0.55	
Snohomish†	82	37	60.2	0.32	
South Bend†	94	40	62.1	0.10	
Stampede †	93	37	62.0	0.08	
Stillaguamish†	83	35	58.0	0.25	
Sunnyside†	101	40	70.8	0.00	
Tacoma†	83	40	60.7	0.05	
Union City†	92	40	64.2	0.08	
Vashon	84	32	55.6	0.13	
Waterville†	98	38	65.6	T.	
Wenatchee Lake†	96	32	60.6		
West Ferndale†	89	40	61.4	0.29	
West Virginia.					
Beverly†	92	45	72.1	1.85	
Bloomery†	91	42	69.2	2.92	
Bluefield †	94	45	73.5	4.16	
Buckhannon *a*†				2.77	
Central Station *†[1]	95[f]	46	70.7[c]	1.44	
Charleston†				4.81	
Dayton *[1]	93	54	73.1		
Elkhorn†	88	47	71.1	7.69	
Ella †	92	53	74.8	3.90	
Fairmont †				3.28	
Glenville†	93	47	72.4	1.69	
Grafton†	93	46	72.2	3.48	
Green Sulphur	92	42	74.0	3.11	
Harpers Ferry†				2.12	
Hewett†	95	50	75.1	4.15	
Hinton *a*†				3.21	
Hinton δ†	93	52	74.2		
Leachtown†				1.60	
Martinsburg†	96	50	74.0	2.25	
Morgantown *a*†				2.18	
Morgantown δ†	95	45	73.0	2.18	
New Martinsville†	94	46	72.9	3.32	
Nuttallburg†	104	40	73.4	4.80	
Philippi†				2.87	
Point Pleasant†	99	51	77.0	2.73	
Powellton†	91	45	70.7	5.80	
Rowlesburg†				1.89	
Sandyville†	99	45	74.0	2.37	
Tannery *[1]	96	48	73.9		
Weston *a*†				1.50	
Weston δ *[1]	93	52	75.3	1.50	
Wheeling *a*†				3.28	
Wheeling δ†	94	49	74.8	3.56	
White Sulphur Springs†	93	40	72.6	3.37	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Wisconsin.	°	°	°	*Ins.*	*Ins.*
Amherst	94	36	68.2	2.62	
Apollonia *†	90	34	70.3	1.62	
Barron †	89	30	62.4	1.78	
Belleville	97	41	69.1	2.01	
Beloit	94	48	72.2	3.31	
Berlin	98	40	70.1	1.64	
Black River Falls †	90	34	67.7	0.92	
Centralia	95	42	69.1	2.82	
Chilton	96	44	69.6	2.55	
City Point	95	22	65.2	1.85	
Crandon †	88	35	65.0	3.83	
Delavan †	94	40	70.0	4.12	
Depere †	95	45	68.0	3.79	
Eau Claire	96	40	68.8	1.28	
Florence †	84	37	62.2	2.19	
Fond du Lac †	95	42	69.6	3.19	
Grantsburg †	94	39	64.5	2.50	
Hartford				3.23	
Harvey †	98	48	70.8	4.88	
Hayward	89	40	65.8	3.19	
Hillsboro	96	39	68.7	3.22	
Janesville †	95	46	71.6	2.53	
Kenosha *[10]	90	50	71.6		
Koepenick *†	88	50	63.8	2.50	
Lancaster †	95	50	71.9	2.73	
Lincoln †[3]			68.8	4.65	
Madison †	93	55	72.7	2.08	
Manitowoc †	89	45	66.0	3.51	
Meadow Valley †	93	33	67.4	3.71	
Medford †	98	33	67.2	3.19	
Neillsville †	94	38	66.5	1.90	
New Holstein	91	43	68.7	2.47	
Oconomowoc †	95	46	71.8	3.22	
Oconto	89	36	66.1	3.17	
Osceola †	95	30	66.5	1.83	
Pepin				1.59	
Pine River †	95	37	68.4	2.74	
Port Washington	97	49	69.4	4.74	
Prairie du Chien				2.09	
Racine *[10]	85	56	69.3		
Wisconsin—Cont'd.					
Rhinelander	87	31	64.2	2.26	
Royalton	92	37	67.7	2.99	
Sharon †	97	45	71.2	3.49	
Shawano	94	35	65.0	2.18	
Spooner †	91	35	65.5	1.93	
Stevens Point †	94	42	68.0	3.59	
Sturgeon Bay Canal *[10]	80	46	65.1		
Two Rivers *[10]	82	52	68.8		
Valley Junction †	94	31	66.8	4.31	
Viroqua	96	47	70.6	2.49	
Watertown †	94	48	72.3	2.20	
Waukesha †	95	54	72.0	2.61	
Waupaca †				2.15	
Wausau †	87	40	66.3	4.35	
West Bend	95	45	70.4	3.71	
Westfield †	94	42	69.8	3.37	
Whitehall †	96	30	66.8	1.85	
Wyoming.					
Big Horn Ranch	81	20	56.6	1.74	
Fort Laramie †	99	43	69.5	0.24	
Fort Washakie	90	38	65.0	1.10	
Fort Yellowstone †	85	36	61.6	0.73	
Lander	88	44	65.3	1.28	
Laramie	86	36	61.0	1.17	
Lusk	95	41	66.7	0.20	
Sheridan	95	36	63.5	1.44	
Sundance	94	41	64.6	1.35	
Wheatland	98	50	71.9	T.	
Mexico.					
Ciudad P. Diaz	102	75	87.5	3.37	
Leon de Aldamas	85	53	69.2	3.64	
Mexico	79	49	64.2	2.65	
Puebla	83	50	67.3	5.24	
Topolobampo *[1]	100	66	85.9	8.15	
New Brunswick.					
St. John	76	50	61.6	7.09	
West Indies.					
Grand Turk Island				3.73	

EXPLANATION OF SIGNS.

* Extremes of temperature from observed readings of dry thermometer.

† Weather Bureau instruments.

‡ Record furnished by the Arrowhead Reservoir Company, in the San Bernardino Mountains, San Bernardino County, Cal., at elevations varying from 4,900 to 6,900 feet.

A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:

[1] Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. ÷ 4.
[2] Mean of 8 a. m. + 8 p. m. ÷ 2.
[3] Mean of 7 a. m. + 7 p. m. ÷ 2.
[4] Mean of 6 a. m. + 6 p. m. ÷ 2.
[5] Mean of 7 a. m. + 2 p. m. + 2.
[6] Mean of readings at various hours reduced to true daily mean by special tables.
[7] Mean from hourly readings of thermograph.
[8] Mean of 7 a. m. + 2 p. m. + 9 p. m. ÷ 3.
[9] Mean of sunrise and noon.
[10] Mean of sunrise, noon, sunset, and midnight.

The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers.

An italic letter following the name of a station, as "Livingston *a*," "Livingston *b*," indicates that two or more observers, as the case may be, are reporting from the same station. A small roman letter following the name of a station, or in figure columns, indicates the number of days missing from the record; for instance, "s" denotes 14 days missing.

No note is made of breaks in the continuity of temperature records when the same do not exceed two days. All known breaks, of whatever duration, in the precipitation record receive appropriate notice.

NOTE: The following change has been made: Kansas, Hayes City changed to Hays.

TABLE III.—*Data from Canadian stations for the month of August*, 1895.

Stations.	Pressure. Mean not reduced.	Mean reduced.	Departure from normal.	Temperature. Mean.	Departure from normal.	Precipitation. Total.	Departure from normal.	Prevailing direction of wind.
	Inches.	*Inches.*	*Inches.*	°	°	*Inches*	*Inches.*	
St. Johns, N. F						2.87	— 1.08	sw.
Sydney, C. B. I	29.84	29.90	— .06	62.2	+ 0.2	6.03		sw.
Grindstone, G. of St. L.	29.76	29.79		60.9		3.73		w.
Sable Island	29.91			63.6		5.59	+ 2.03	nw.
Halifax, N. S	29.78	29.91	— .07	63.3	+ 0.3	5.39	+ 2.30	w.
Grand Manan, N. B	29.84	29.89		61.4		4.81	+ 1.59	s.
Yarmouth, N. S	29.84	29.92	— .08	60.7	+ 1.2	6.54	+ 3.14	w.
St. Andrews, N. B				61.6		4.62	+ 1.77	nw.
Charlottetown, P. E. I.	29.82	29.86		63.6		6.54	+ 3.14	w.
Chatham, N. B	29.84	29.86	— .08	61.9	+ 0.9	4.90	+ 0.76	w.
Father Point, Que	29.79	29.82	— .09	55.6	— 0.4	3.47	+ 0.91	w.
Quebec, Que	29.53	29.85	— .10	61.3	— 1.7	6.26	+ 2.84	sw.
Montreal, Que	29.66	29.86	— .09	65.1	— 1.4	6.92	+ 4.75	w.
Rockliffe, Ont	29.36	29.86	— .08	60.2	+ 0.2	1.96	— 0.97	nw.
Kingston, Ont	29.59	29.90	— .07	65.5	— 1.0	2.25	+ 0.26	sw.
Toronto, Ont	29.56	29.94	— .05	63.4	— 2.1	3.01	+ 0.43	nw.
White River, Ont	28.56	29.89		56.5	+ 0.4	3.06	0.00	w.
Port Stanley, Ont	29.32	29.94	— .05	65.4		1.83	— 0.56	w.

TABLE III.—*Data from Canadian stations*—Continued.

Stations.	Pressure. Mean not reduced.	Mean reduced.	Departure from normal.	Temperature. Mean.	Departure from normal.	Precipitation. Total.	Departure from normal.	Prevailing direction of wind.
	Inches.	*Inches.*	*Inches.*	°	°	*Inches*	*Inches.*	
Saugeen, Ont	29.22	29.92	— .06	62.1	— 0.4	2.73	+ 0.95	w.
Parry Sound, Ont	29.22	29.90	— .07	62.0	0.0	2.46	— 0.22	w.
Port Arthur, Ont	29.16	29.84	— .09	59.2	+ 0.2	1.96	— 0.41	w.
Winnipeg, Man	29.05	29.86	— .05	60.4	— 1.1	1.01	— 2.45	nw.
Minnedosa, Man	28.08	29.84	— .05	58.5	— 0.2	1.24	— 0.62	nw.
Qu'Appelle, Assin	27.66	29.87	— .03	57.6	— 2.9	0.58	— 0.89	nw.
Medicine Hat, Assin	27.64	29.88	— .02	62.0	— 3.5	0.24	— 0.75	w.
Swift Current, Assin	27.38	29.90	— .02	60.6	— 1.9	0.38	— 1.36	w.
Calgary, Alberta	26.40	29.87	— .03	55.7	— 2.8	1.18	— 0.59	w.
Prince Albert, Sask	28.36	29.84		56.2		1.18		w.
Edmonton, Alberta	27.64	29.94	+ .06	55.4	— 2.2	1.97	+ 0.14	nw.
Battleford, Sask	28.14	29.83		57.9		1.53		nw.
Spences Bridge, B. C	29.12	29.91		68.8		0.10		w.
Hamilton, Bermuda	30.02	30.18	+ .08	78.6		6.51		s.
Banff, Alberta	25.42	29.98		53.0		1.29		sw.
Esquimalt, B. C	30.01	30.04		56.4		0.45		s.
Anticosti, Gulf of St. L.	29.78	29.81	— .06	57.4	— 1.6	7.75		s.

TABLE IV.—*Mean temperature for each hour of seventy-fifth meridian time, August, 1895.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex.	75.5	74.8	73.9	73.3	72.6	71.7	71.3	72.1	75.8	78.9	82.5	84.6	87.0	88.2	89.7	90.0	90.0	88.5	85.4	85.0	81.6	78.9	77.5	76.5	80.3
Albany, N. Y.	66.0	65.4	64.7	64.4	64.0	64.0	65.6	68.4	70.9	73.6	76.1	77.9	79.1	79.7	80.0	79.7	78.0	76.3	74.5	71.7	70.5	69.0	67.8	66.8	71.4
Alpena, Mich.	59.9	59.3	58.3	57.3	56.9	56.4	57.6	60.3	63.1	65.0	66.7	68.2	67.4	67.6	68.5	67.9	67.6	66.7	65.7	63.9	63.1	62.0	61.3	60.4	62.9
Amarillo, Tex.	69.9	68.8	67.8	66.8	65.9	65.1	65.0	65.4	68.1	72.3	75.5	77.8	79.5	81.2	82.5	83.4	83.6	82.0	81.2	78.9	75.9	74.5	71.4	70.3	73.8
Atlanta, Ga.	72.5	72.0	71.4	71.0	70.6	70.4	70.8	72.8	74.5	77.0	79.0	80.5	81.7	82.5	81.2	80.8	80.9	79.6	78.1	76.3	75.3	74.5	73.7	73.3	75.8
Augusta, Ga.	74.5	74.0	73.3	72.7	72.3	71.9	73.2	75.7	78.2	80.5	82.7	84.4	85.5	86.3	86.0	85.5	84.3	82.7	80.9	79.1	77.7	76.9	75.9	75.0	78.7
Baker City, Oreg.	62.1	60.3	58.7	56.7	55.1	53.4	52.0	51.4	51.4	55.6	61.4	66.3	69.9	73.0	76.0	78.4	79.5	79.8	78.9	77.5	74.1	70.0	66.9	64.2	65.5
Baltimore, Md.	72.4	71.8	70.8	70.1	69.5	69.0	70.0	73.6	75.8	78.5	80.7	82.4	83.4	84.5	84.5	84.3	83.1	81.0	79.5	78.2	77.0	75.9	74.8	73.7	76.9
Bismarck, N. Dak.	61.4	59.9	58.4	56.5	54.9	54.5	55.0	55.5	59.9	65.4	70.0	73.8	75.4	77.3	79.2	80.7	81.0	80.2	79.2	78.2	77.0	75.9	74.8	73.7	76.1
Boston, Mass.	66.5	65.8	65.4	65.0	64.6	64.8	66.4	69.0	71.3	72.5	74.0	75.3	76.1	76.4	76.2	75.8	75.1	74.5	73.2	72.2	70.8	70.1	69.3	68.4	72.2
Buffalo, N. Y.	66.3	65.5	65.1	64.6	64.2	64.5	65.4	67.3	69.5	71.4	72.7	72.8	73.1	73.3	74.4	74.7	74.1	73.6	73.1	71.0	70.0	69.3	68.5	67.7	69.5
Charleston, S. C.	78.3	78.2	78.0	77.9	77.4	77.3	78.3	80.3	82.1	83.5	84.9	85.6	85.9	85.8	83.9	85.0	83.9	82.6	81.3	79.9	79.3	79.2	78.9	78.5	82.1
Charlotte, N. C.	71.7	71.3	70.5	70.1	69.7	69.5	69.8	72.5	74.4	77.0	79.3	81.5	82.9	83.9	84.1	85.6	85.0	83.9	82.6	81.3	79.7	78.3	77.4	76.1	78.5
Cheyenne, Wyo.	58.5	57.0	56.4	56.2	55.5	55.1	54.3	54.9	60.5	65.8	69.6	71.7	73.3	74.1	75.5	75.3	75.1	75.1	73.2	71.6	70.8	69.3	67.4	66.2	72.3
Chicago, Ill.	71.5	70.9	69.8	69.2	68.4	68.2	68.3	69.3	71.2	72.8	73.7	74.7	75.6	76.2	75.6	75.6	76.1	76.1	75.1	74.8	73.8	73.3	72.7	71.9	74.1
Cincinnati, Ohio.	73.8	72.8	71.8	71.0	70.1	69.3	69.1	71.0	73.5	76.6	79.5	81.9	82.9	83.3	84.0	85.2	85.3	84.1	83.0	81.5	79.8	78.2	76.5	75.2	77.5
Cleveland, Ohio.	67.3	66.7	66.3	65.5	64.8	64.8	65.5	68.1	70.8	73.1	74.8	75.6	76.6	76.7	76.0	74.9	74.2	73.2	72.3	71.4	70.1	69.1	68.1	67.0	70.8
Columbus, Ohio.	69.4	68.2	67.1	66.1	65.2	64.6	65.5	69.3	71.8	74.2	76.7	78.2	79.3	79.3	78.7	77.8	76.7	75.5	74.3	73.1	72.4	71.9	72.4	70.7	74.7
Denver, Colo.	65.2	64.1	63.5	62.8	61.7	60.2	59.0	58.7	61.4	65.8	69.6	71.7	73.3	74.1	75.3	75.6	76.1	76.1	75.1	74.8	73.6	72.7	71.6	70.6	73.6
Des Moines, Iowa.	69.0	67.7	67.1	66.1	65.2	64.2	64.2	65.9	68.8	72.8	74.7	77.9	81.2	82.1	82.7	82.1	82.5	81.9	80.9	80.2	79.3	78.3	77.4	76.6	78.8
Detroit, Mich.	66.3	65.3	65.1	64.4	63.6	63.1	63.5	66.4	68.5	71.1	73.3	75.1	76.5	77.8	78.0	78.5	78.1	77.2	75.4	73.1	71.2	69.4	68.3	67.0	70.7
Dodge City, Kans.	70.2	69.4	68.7	68.1	67.1	66.1	65.6	66.7	70.2	73.3	76.6	79.8	82.4	84.1	85.1	85.7	85.0	84.0	82.7	79.9	76.4	74.4	72.7	71.2	75.2
Duluth, Minn.	64.1	63.3	62.6	61.8	61.2	60.7	60.3	61.3	62.4	64.3	65.8	67.3	68.5	69.4	69.9	70.4	70.7	70.7	69.2	68.2	67.2	66.3	65.5	64.5	66.7
Eastport, Me.	57.0	56.6	56.3	56.2	55.8	56.5	56.5	57.9	60.3	62.0	64.0	64.9	65.4	65.9	65.7	65.9	65.2	64.0	62.8	61.8	60.9	59.6	58.3	57.9	57.7
El Paso, Tex.	73.6	72.5	71.7	70.7	69.7	68.9	68.0	68.1	71.0	74.7	77.9	81.2	83.2	85.5	87.0	88.0	88.5	88.6	87.9	86.0	83.4	80.5	77.8	76.2	74.6
Fort Smith, Ark.	73.9	72.8	72.2	71.5	70.9	70.4	70.4	72.9	74.9	78.2	80.4	82.6	84.2	85.3	86.5	87.0	86.8	85.6	83.7	82.1	81.5	79.2	77.5	76.2	78.3
Galveston, Tex.	81.3	81.5	81.3	81.3	81.3	82.7	83.1	84.1	85.6	86.8	83.7	84.7	84.7	84.5	84.1	84.0	83.6	82.3	82.3	82.7	82.0	81.4	81.3	81.4	82.4
Grand Haven, Mich.	65.7	65.0	64.4	64.1	63.2	62.7	63.1	65.6	68.1	69.8	71.2	72.6	72.6	72.8	72.8	72.7	72.9	73.0	72.1	70.1	68.5	67.1	66.3	66.0	68.4
Havre, Mont.	59.5	57.5	55.8	53.7	52.3	50.9	50.0	50.5	55.6	60.7	66.4	70.0	73.0	75.4	77.8	79.1	80.0	80.1	79.5	78.1	74.7	68.6	64.6	61.6	65.6
Helena, Mont.	63.7	62.0	60.9	59.3	57.8	56.4	55.5	54.4	56.1	58.8	61.5	64.9	68.1	70.9	73.2	74.7	75.8	76.7	76.6	75.9	74.0	70.7	67.5	65.2	65.9
Huron, S. Dak.	63.2	62.0	60.2	58.8	57.1	56.5	55.8	58.7	63.9	69.0	74.6	77.7	79.9	81.7	83.6	86.9	86.5	85.9	83.2	80.1	77.3	73.3	70.0	67.6	64.8	70.3
Independence, Cal.*	76.0	74.5	71.9	69.7	68.1	66.6	64.7	63.5	63.0	67.8	73.8	79.8	85.1	87.4	89.3	91.1	92.1	92.7	92.4	91.3	88.0	85.8	82.0	79.6	77.2	78.6
Indianapolis, Ind.	70.6	69.5	68.5	67.0	66.2	65.2	66.0	69.7	73.4	77.4	80.5	82.9	85.8	87.4	88.6	89.5	86.5	86.2	85.0	82.5	79.5	77.0	75.5	73.7	72.0	76.3
Jacksonville, Fla.	77.5	77.1	77.0	76.6	76.1	75.8	76.3	79.8	81.1	82.5	84.8	87.1	88.3	87.4	86.2	86.9	86.1	84.5	83.2	81.6	79.4	78.8	78.4	77.9	77.6	80.9
Kansas City, Mo.	71.3	67.6	70.0	69.2	68.5	68.3	67.9	69.2	71.0	73.6	76.1	78.2	79.6	80.9	81.8	82.2	82.2	81.6	83.7	82.1	79.5	75.7	74.3	73.1	72.1	74.8
Key West, Fla.	81.8	81.5	81.6	81.5	81.6	81.3	81.7	83.1	84.2	84.8	85.3	85.9	86.4	86.3	85.5	85.4	83.0	82.4	82.8	82.6	82.4	82.3	82.0	83.5
Knoxville, Tenn.	71.5	70.8	70.1	69.4	69.0	68.5	68.5	71.3	73.5	76.3	78.7	80.5	82.4	83.4	84.2	83.9	82.2	80.7	77.5	76.5	75.2	73.9	72.7	76.0
Lander, Wyo.	60.8	58.7	56.9	54.9	53.5	52.6	51.5	51.6	56.7	62.5	67.5	69.9	72.5	74.5	76.9	78.3	78.4	76.9	76.0	76.0	76.9	75.6	74.6	73.9	72.7	76.0
Little Rock, Ark.	74.5	73.6	73.2	72.4	72.0	71.5	71.5	73.2	75.6	78.8	81.7	83.8	85.4	86.2	86.9	86.5	85.4	83.9	83.0	82.2	80.7	79.0	77.5	76.3	73.9	76.7
Louisville, Ky.	71.7	70.9	70.1	69.6	69.0	68.2	68.2	70.4	73.4	77.2	80.8	83.0	84.6	85.6	85.9	86.0	84.4	84.3	82.1	81.1	79.5	77.5	75.5	73.9	72.8	76.9
Lynchburg, Va.	70.9	70.0	68.9	68.1	67.7	67.5	68.3	69.7	73.5	77.2	80.0	82.2	83.9	85.3	86.2	86.5	85.7	84.4	83.1	80.7	77.6	75.9	74.6	73.3	72.2	76.9
Marquette, Mich.	61.0	60.7	60.6	59.9	59.2	58.8	59.6	62.4	65.3	68.4	71.6	74.1	75.2	75.8	76.3	75.4	74.6	73.6	72.9	71.5	70.2	69.2	68.2	67.3	66.4	68.8
Memphis, Tenn.	75.2	74.5	74.0	73.4	72.9	72.3	72.4	74.1	75.6	78.0	81.0	82.7	84.5	85.8	86.3	86.3	85.5	84.5	83.2	81.6	79.4	77.8	76.7	75.7	74.7	76.7
Milwaukee, Wis.	67.8	67.1	66.6	66.0	65.5	65.1	65.1	67.3	69.1	71.6	73.7	75.0	75.2	75.8	76.7	77.0	76.6	75.0	74.5	73.2	72.9	71.5	70.2	69.3	68.5	70.9
Mobile, Ala.	77.5	77.0	76.7	76.1	75.7	75.5	75.9	78.0	80.2	82.4	84.1	84.7	84.8	84.4	83.8	83.8	83.2	82.9	81.0	80.6	79.9	79.1	78.6	78.1	80.7
Montgomery, Ala.	75.8	75.3	74.9	74.4	73.9	73.8	73.9	75.5	77.7	79.9	82.3	84.3	85.6	86.9	86.3	86.3	85.4	83.9	82.1	80.6	78.6	77.5	76.3	75.4	73.8	77.4
Moorhead, Minn.	59.6	58.2	57.4	56.0	55.0	54.2	54.0	56.3	60.1	64.6	68.3	70.9	72.7	71.4	74.1	75.4	74.3	73.2	72.1	71.0	70.1	69.2	68.3	67.4	68.0	71.7
Nantucket, Mass.	65.4	65.5	65.5	65.5	65.2	66.0	67.5	68.7	69.2	70.2	71.1	71.0	74.3	75.3	75.8	74.1	73.6	73.2	72.1	71.1	70.1	69.2	68.2	67.3	68.0	71.7
Nashville, Tenn.	73.8	72.9	72.0	71.3	70.5	69.9	70.4	72.8	75.9	79.1	82.2	84.1	84.8	85.0	85.5	85.2	84.2	82.8	81.3	79.6	77.8	76.2	74.7	73.3	72.2	73.6
New Orleans, La.	77.9	77.6	77.8	77.6	77.5	77.3	77.2	78.6	80.1	81.8	83.2	84.1	84.8	85.0	85.5	85.2	84.2	83.1	82.1	80.6	78.9	78.1	76.5	74.9	73.2	76.1
New York, N. Y.	70.8	70.1	69.4	69.0	68.6	68.6	69.5	70.8	72.8	74.8	76.5	77.9	79.1	79.7	79.3	78.0	76.6	75.1	74.6	73.6	73.1	72.3	71.7	73.8
Norfolk, Va.	72.5	72.4	72.3	72.1	71.6	71.6	73.0	75.6	78.0	80.4	83.5	82.4	83.3	84.8	84.3	83.6	82.2	82.9	82.5	81.3	78.4	76.8	75.7	74.8	74.0	77.4
North Platte, Nebr.	67.1	65.9	64.7	63.3	62.3	61.2	60.1	61.5	64.5	68.6	72.1	75.6	78.6	79.7	81.5	82.6	82.9	82.5	81.3	79.6	78.9	78.2	77.6	76.9	76.2	74.7
Omaha, Nebr.	71.4	70.4	69.3	68.5	67.8	67.2	66.5	67.1	68.1	70.3	72.9	75.5	77.5	78.6	80.6	81.0	80.7	79.6	78.8	77.8	76.5	75.2	74.3	73.3	73.2	74.7
Parkersburg, W. Va.	70.1	69.0	67.7	66.9	66.0	65.7	67.5	70.8	73.9	77.5	80.5	82.9	84.8	85.9	86.3	85.4	84.2	83.0	81.0	80.5	80.0	78.3	76.5	75.2	74.6	76.5
Philadelphia, Pa.	71.3	70.8	70.3	69.7	69.5	69.3	70.5	72.8	75.4	77.9	80.3	81.8	83.2	83.9	84.2	83.5	82.8	81.4	80.5	79.2	78.9	78.6	78.3	77.9	77.4	78.2
Phœnix, Ariz.†	85.8	84.3	82.6	81.5	80.3	79.2	78.0	77.2	78.3	82.0	85.9	89.3	91.6	94.1	95.9	97.7	98.9	99.6	99.5	98.3	98.3	98.5	94.0	91.7	88.4	85.2	82.2	81.4
Pittsburg, Pa.	69.5	68.6	67.8	67.1	66.6	66.3	66.4	69.4	71.5	74.8	77.2	79.2	81.3	81.6	82.5	82.3	82.0	81.0	80.5	78.9	78.9	78.6	77.1	76.4	75.2	73.8	72.9	73.0	73.2	72.9	72.7	72.5	72.3	72.2	72.1	72.0	72.2
Portland, Oreg.	65.7	64.1	61.9	60.9	59.3	57.7	56.6	55.5	60.4	65.0	69.9	72.6	75.5	77.2	78.7	80.1	81.9	81.0	80.5	80.0	78.3	76.9	75.8	74.9	74.1	73.8	73.5	73.4	73.3	73.2	73.1	73.0	72.9	72.8	72.7	72.6	73.0
Rapid City, S. Dak.	64.4	63.4	63.0	62.3	61.5	60.7	59.3	60.4	65.0	69.9	72.6	75.5	77.2	78.7	80.1	81.9	81.0	80.5	80.0	78.3	76.6	74.1	70.5	68.7	67.4	65.8	64.4	63.4	62.6	62.0	61.6	61.3	61.1	61.0	60.9	60.8	62.3
Red Bluff, Cal.	80.4	78.9	77.4	74.7	73.2	71.6	70.1	68.4	68.1	70.4	74.1	76.5	78.1	79.2	82.2	85.7	88.7	91.1	92.8	93.6	94.0	93.5	91.7	88.4	85.2	82.2	81.4
Rochester, N. Y.	63.6	63.1	62.3	61.6	60.9	60.9	61.8	66.9	69.0	71.2	73.5	75.2	76.1	76.2	75.1	74.4	74.0	73.6	72.5	70.6	70.6	68.6	67.1	66.0	65.1	64.4	65.4
Roseburg, Oreg.	66.7	63.6	61.5	59.0	57.3	55.0	53.8	52.2	51.5	51.8	54.4	58.8	62.3	66.2	69.5	72.5	73.1	74.0	72.5	72.5	73.5	73.9	73.9	73.8	69.6	65.4
St. Louis, Mo.	74.9	74.1	73.2	72.4	71.4	70.8	70.9	72.3	74.5	77.1	79.4	81.5	82.8	83.7	84.2	84.2	83.1	82.1	81.0	79.5	78.4	76.9	76.9	76.5	76.2	77.7
St. Paul, Minn.	64.6	63.3	62.3	61.6	60.9	59.8	59.5	61.5	64.9	68.7	71.6	73.7	75.9	77.1	77.5	77.8	78.4	78.0	76.6	74.1	70.5	68.7	67.4	65.8	64.4	63.4	62.6	62.0	61.6	61.3	61.1	61.0	60.9	60.8	60.7	60.6	62.1
Salt Lake City, Utah.	73.5	71.1	70.1	68.4	67.8	66.4	65.6	65.0	66.6	70.5	74.9	79.9	82.9	84.9	85.5	86.3	86.5	86.7	85.1	84.6	82.2	79.4	78.6	78.1	76.1	74.1	76.4
San Diego, Cal.	64.7	64.5	64.3	64.2	64.2	64.1	63.9	63.7	64.1	65.8	66.2	67.8	67.7	69.0	69.5	69.7	69.9	69.7	69.2	68.7	68.6	68.4	66.8	65.6	65.1	64.2	66.4
San Francisco, Cal.	55.0	54.8	54.5	54.4	54.1	53.9	53.9	54.0	54.1	54.8	55.7	57.4	57.7	59.1	60.3	61.6	62.5	61.5	61.5	61.0	60.0	58.8	57.5	56.2	55.5	55.2	56.9
Santa Fe, N. Mex.	61.1	60.5	59.8	58.9	58.3	57.4	56.8	57.5	60.7	63.9	65.8	68.4	70.5	71.8	72.5	73.5	73.9	72.9	71.4	70.3	69.4	68.5	66.8	64.7	63.5	61.9	65.1
Sault Ste. Marie, Mich.	55.0	54.4	54.2	53.8	53.5	53.5	54.5	56.5	59.2	61.8	63.9	65.2	66.4	66.9	67.2	67.3	66.3	64.9	62.5	60.8	59.0	57.7	56.6	55.8	59.9
Savannah, Ga.	77.0	76.6	76.5	76.0	75.7	75.5	77.1	80.1	82.9	85.2	87.0	88.2	88.2	88.0	87.4	86.0	83.4	82.1	81.0	79.4	78.6	78.1	77.6	77.3	81.0
Seattle, Wash.	61.5	60.2	58.5	57.5	56.4	55.2	54.6	54.0	53.7	54.2	55.4	56.9	58.8	60.8	62.9	65.2	67.0	69.1	70.0	70.3	69.2	68.9	66.9	64.2	62.4	61.0
Shreveport, La.	76.9	76.6	76.0	75.5	75.0	74.7	74.5	76.1	78.7	81.2	83.9	86.7	88.2	89.1	90.2	90.4	89.9	88.8	86.5	83.9	81.6	80.1	78.9	77.9	69.3	68.2
Spokane, Wash.	65.5	63.4	60.4	58.9	56.6	55.4	53.7	52.7	53.5	56.7	62.5	67.5	72.3	75.3	77.9	79.6	80.9	81.3	81.3	80.7	79.8	78.8	78.5	77.9	77.5	80.8
Titusville, Fla.	77.0	76.5	76.4	75.8	75.5	75.6	78.6	80.9	83.7	85.0	86.4	86.8	87.2	86.4	84.3	84.3	83.4	82.1	80.7	79.8	78.8	78.5	77.9	77.5	72.3
Toledo, Ohio.	68.4	67.6	67.1	66.0	65.0	63.9	64.2	67.4	69.7	72.7	75.2	76.9	77.6	79.1	79.4	79.9	80.0	79.0	77.5	74.9	73.2	71.6	70.3	69.4	72.3
Vicksburg, Miss.	75.0	74.8	74.5	73.8	73.5	73.5	73.5	75.2	77.0	79.3	81.4	83.0	84.1	84.8	85.5	85.5	84.4	84.4	82.8	81.0	79.3	77.5	76.5	75.8	78.6
Washington, D. C.	70.8	70.5	69.4	68.5	67.8	67.7	69.6	73.2	76.4	79.3	81.2	83.2	84.6	85.5	85.5	85.1	84.4	83.4	82.8	79.5	77.5	75.6	74.2	73.0	72.0	76.6
Williston, N. Dak.	60.6	59.2	57.0	56.1	54.9	53.4	51.8	52.9	56.9	61.2	65.6	69.8	72.5	75.0	76.9	78.5	78.6	78.7	78.1	76.3	75.6	72.7	67.8	64.7	64.2	65.9
Wilmington, N. C.	74.4	74.2	73.7	73.4	73.0	72.8	73.2	77.0	77.8	79.5	81.5	82.2	82.4	82.5	82.4	82.2	81.5	80.7	79.3	77.8	76.5	76.1	75.3	74.9	77.7
Winnemucca, Nev.	69.5	67.3	66.0	65.1	63.3	60.3	58.9	56.5	56.3	60.2	66.6	71.8	75.9	79.1	81.1	82.8	84.0	84.5	84.4	84.0	82.5	79.3	76.4	72.9	72.0
Yuma, Ariz.	85.2	84.3	83.5	82.7	81.3	80.2	79.6	78.9	80.8	85.3	90.1	93.8	96.6	99.2	100.9	102.0	103.0	102.8	102.1	100.6	96.7	93.4	89.9	86.7	90.8

* All values for 28 days.

† All values for 26 days.

TABLE V.—*Mean pressure for each hour of seventy-fifth meridian time, August, 1895.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex.....	28.190	.191	.192	.195	.198	.205	.218	.230	.240	.246	.246	.245	.228	.209	.186	.165	.149	.140	.138	.142	.156	.173	.184	.191	.194
Albany, N. Y	29.855	.854	.849	.847	.855	.865	.872	.876	.875	.872	.860	.846	.836	.825	.814	.810	.811	.816	.825	.844	.853	.856	.862	.863	.848
Alpena, Mich	29.251	.250	.252	.248	.249	.253	.260	.267	.266	.262	.257	.250	.243	.239	.236	.233	.232	.232	.233	.243	.251	.254	.256	.260	.249
Atlanta, Ga.....	28.851	.846	.845	.847	.855	.866	.878	.887	.893	.895	.893	.883	.864	.844	.832	.825	.822	.820	.831	.840	.852	.861	.861	.860	.856
Augusta, Ga	29.833	.826	.819	.816	.818	.827	.842	.855	.864	.869	.871	.862	.845	.826	.807	.799	.795	.797	.803	.813	.825	.833	.839	.841	.830
Baltimore, Md.....	29.783	.778	.777	.777	.785	.796	.805	.807	.812	.813	.806	.795	.781	.765	.753	.744	.741	.742	.753	.762	.775	.779	.788	.785	.779
Bismarck, N. Dak..	28.181	.182	.183	.190	.194	.198	.203	.209	.220	.230	.214	.207	.191	.178	.164	.149	.138	.130	.125	.130	.145	.161	.170	.175	.177
Boston, Mass	29.805	.804	.801	.803	.812	.815	.821	.824	.822	.820	.810	.804	.792	.782	.775	.775	.773	.779	.790	.801	.808	.810	.811	.811	.802
Buffalo, N. Y.....	29.203	.201	.200	.201	.208	.216	.227	.231	.229	.230	.228	.223	.216	.207	.199	.193	.187	.191	.193	.195	.205	.206	.211	.215	.209
Charleston, S. C ...	30.006	.999	.998	.999	.995	.004	.015	.023	.033	.042	.041	.025	.016	.001	.989	.979	.980	.984	.990	.999	.011	.018	.020	.015	.007
Chicago, Ill	29.077	.073	.073	.072	.075	.088	.096	.104	.108	.109	.110	.102	.095	.084	.070	.061	.055	.051	.050	.056	.067	.073	.078	.082	.079
Cincinnati, Ohio...	29.321	.321	.322	.321	.327	.339	.348	.355	.356	.355	.352	.339	.327	.314	.295	.282	.277	.273	.277	.287	.305	.312	.317	.322	.318
Cleveland, Ohio....	29.162	.161	.163	.165	.171	.182	.193	.202	.207	.205	.202	.195	.187	.175	.166	.157	.155	.158	.152	.159	.165	.165	.165	.168	.174
Columbus, Ohio....	29.107	.106	.105	.106	.112	.122	.132	.139	.142	.141	.135	.123	.110	.095	.081	.068	.065	.065	.067	.076	.090	.100	.105	.109	.104
Denver, Colo.....	24.848	.843	.840	.838	.840	.844	.853	.865	.870	.874	.876	.873	.865	.853	.845	.833	.822	.815	.818	.819	.833	.840	.849	.849	.846
Des Moines, Iowa..	29.047	.048	.043	.045	.047	.053	.064	.072	.079	.082	.085	.081	.069	.059	.047	.035	.034	.016	.014	.014	.019	.032	.037	.046	.048
Detroit, Mich	29.182	.180	.181	.181	.185	.189	.197	.203	.206	.209	.208	.201	.191	.179	.168	.160	.153	.148	.151	.158	.169	.177	.184	.188	.181
Dodge City, Kans..	27.397	.394	.391	.388	.389	.390	.399	.408	.417	.420	.423	.422	.414	.403	.390	.378	.370	.359	.353	.358	.369	.387	.397	.399	.392
Duluth, Minn	29.136	.134	.124	.134	.127	.136	.144	.147	.150	.153	.152	.148	.141	.134	.127	.123	.120	.115	.115	.116	.122	.128	.128	.131	.131
Eastport, Me	29.803	.800	.797	.800	.807	.814	.818	.820	.822	.816	.811	.805	.800	.797	.791	.789	.788	.792	.800	.805	.810	.809	.807	.805	.804
El Paso, Tex.....	26.217	.217	.216	.218	.216	.217	.223	.234	.246	.255	.260	.258	.247	.229	.209	.186	.166	.154	.149	.152	.168	.186	.205	.215	.210
Eureka, Cal.....	29.940	.940	.932	.927	.922	.918	.914	.915	.916	.920	.928	.932	.938	.945	.945	.945	.943	.942	.938	.935	.933	.932	.937	.938	.932
Fort Canby, Wash.	29.916	.915	.915	.916	.913	.913	.913	.915	.919	.925	.931	.935	.935	.936	.933	.929	.923	.915	.910	.904	.901	.901	.905	.909	.918
Galveston, Tex....	29.961	.957	.957	.956	.959	.967	.978	.990	.996	.000	.005	.003	.993	.981	.963	.950	.942	.935	.932	.939	.949	.957	.964	.965	.967
Grand Haven, Mich	29.258	.258	.256	.258	.260	.267	.278	.288	.292	.296	.295	.292	.284	.276	.265	.255	.248	.241	.234	.236	.243	.250	.252	.256	.264
Havre, Mont.....	27.346	.352	.359	.360	.362	.365	.370	.375	.379	.384	.379	.376	.367	.351	.339	.328	.317	.306	.299	.298	.301	.314	.328	.337	.346
Helena, Mont.....	25.882	.885	.889	.891	.892	.895	.899	.906	.912	.915	.913	.911	.901	.886	.872	.861	.848	.837	.833	.833	.840	.852	.865	.871	.879
Huron, S. Dak	28.539	.540	.543	.545	.547	.551	.561	.570	.576	.578	.575	.568	.555	.547	.533	.520	.508	.499	.495	.493	.503	.524	.531	.535	.539
Independence, Cal.	25.977	.985	.991	.995	.999	.002	.009	.015	.024	.034	.040	.045	.039	.026	.004	.987	.965	.949	.938	.927	.927	.935	.951	.965	.969
Indianapolis, Ind..	29.172	.173	.173	.176	.181	.189	.199	.207	.210	.211	.206	.195	.182	.167	.154	.142	.134	.134	.136	.146	.161	.168	.174	.175	.174
Jacksonville, Fla..	29.985	.978	.973	.974	.980	.989	.000	.007	.010	.011	.005	.992	.976	.958	.944	.939	.942	.946	.959	.978	.991	.996	.996	.993	.980
Kansas City, Mo...	28.977	.974	.975	.979	.980	.984	.992	.004	.011	.012	.016	.011	.998	.988	.978	.964	.954	.946	.943	.948	.955	.965	.972	.976	.979
Key West, Fla	30.026	.016	.007	.002	.004	.011	.024	.034	.045	.050	.050	.045	.033	.020	.004	.990	.988	.993	.005	.020	.029	.036	.038	.033	.021
Knoxville, Tenn...	29.006	.003	.002	.001	.004	.014	.025	.036	.038	.040	.039	.032	.020	.007	.988	.974	.971	.971	.973	.984	.993	.002	.006	.009	.006
Little Rock, Ark...	29.668	.668	.660	.660	.661	.670	.684	.695	.704	.707	.706	.700	.684	.668	.653	.635	.630	.630	.632	.639	.651	.665	.668	.670	.667
Louisville, Ky.....	29.426	.425	.425	.426	.432	.440	.454	.462	.466	.467	.465	.454	.441	.427	.406	.395	.389	.384	.386	.395	.410	.419	.424	.428	.427
Lynchburg, Va.....	29.285	.279	.278	.281	.289	.301	.310	.314	.315	.317	.309	.297	.280	.260	.243	.235	.234	.237	.250	.264	.277	.284	.286	.286	.280
Marquette, Mich...	29.102	.101	.100	.097	.103	.107	.114	.115	.112	.112	.111	.108	.105	.104	.099	.099	.098	.096	.099	.104	.111	.111	.110	.109	.105
Memphis, Tenn	29.578	.571	.567	.566	.569	.580	.594	.601	.611	.615	.616	.609	.596	.584	.565	.549	.542	.539	.540	.548	.562	.571	.576	.579	.576
Milwaukee, Wis....	29.218	.219	.216	.215	.221	.232	.243	.252	.255	.255	.250	.245	.236	.231	.216	.205	.201	.196	.195	.202	.208	.214	.221	.222	.224
Moorhead, Minn...	28.911	.913	.911	.910	.913	.922	.931	.938	.940	.940	.937	.932	.919	.905	.893	.882	.875	.872	.866	.873	.885	.895	.900	.903	.907
Nantucket, Mass...	29.959	.954	.949	.949	.954	.961	.967	.972	.972	.974	.966	.961	.956	.948	.942	.939	.935	.936	.942	.950	.958	.961	.962	.962	.955
Nashville, Tenn ...	29.428	.426	.424	.423	.427	.437	.452	.458	.465	.465	.462	.452	.435	.418	.399	.390	.385	.381	.388	.398	.416	.423	.427	.428	.425
New Orleans, La...	29.944	.938	.934	.931	.935	.947	.959	.968	.977	.981	.981	.977	.969	.951	.937	.927	.923	.921	.924	.929	.941	.947	.951	.949	.948
New York, N. Y ...	29.630	.627	.623	.623	.628	.638	.647	.652	.654	.655	.645	.638	.627	.616	.605	.601	.606	.606	.612	.620	.628	.631	.633	.635	.628
Norfolk, Va.....	29.932	.925	.921	.922	.929	.940	.950	.956	.958	.960	.955	.948	.934	.921	.910	.901	.901	.904	.914	.925	.934	.936	.941	.938	.932
Omaha, Nebr.....	28.791	.787	.790	.792	.798	.803	.814	.818	.828	.825	.829	.824	.810	.802	.788	.775	.762	.757	.754	.754	.770	.780	.787	.793	.793
Parkersburg, W.Va	29.314	.315	.315	.320	.331	.344	.351	.359	.362	.359	.349	.336	.319	.304	.285	.276	.275	.273	.281	.291	.302	.306	.309	.315	.316
Philadelphia, Pa...	29.850	.848	.843	.842	.846	.855	.865	.870	.875	.876	.869	.857	.843	.832	.816	.810	.810	.813	.822	.836	.846	.852	.855	.855	.845
Pittsburg, Pa	29.099	.099	.099	.100	.102	.109	.117	.128	.129	.129	.125	.117	.107	.091	.077	.067	.063	.067	.070	.077	.085	.091	.098	.102	.098
Portland, Oreg....	29.845	.852	.859	.862	.863	.865	.871	.875	.888	.892	.893	.892	.889	.879	.865	.852	.836	.824	.815	.811	.809	.813	.825	.835	.855
Rochester, N. Y ...	29.385	.380	.379	.381	.388	.395	.404	.406	.407	.408	.405	.400	.393	.389	.382	.377	.374	.372	.381	.388	.396	.396	.398	.397	.391
Roseburg, Oreg....	29.409	.419	.425	.430	.432	.435	.439	.444	.451	.457	.459	.458	.453	.443	.432	.414	.398	.379	.366	.357	.355	.361	.376	.393	.416
St. Louis, Mo	29.392	.392	.389	.389	.393	.401	.413	.419	.425	.430	.431	.424	.416	.403	.389	.378	.368	.362	.360	.363	.376	.385	.391	.390	.395
St. Paul, Minn	29.038	.035	.035	.033	.035	.041	.047	.055	.058	.058	.055	.047	.042	.032	.023	.014	.004	.000	.001	.010	.025	.033	.033	.038	.033
Salt Lake City, Utah	25.622	.630	.631	.632	.633	.637	.644	.657	.669	.678	.681	.681	.675	.661	.648	.635	.614	.605	.593	.588	.591	.601	.613	.616	.635
San Diego, Cal.....	29.883	.876	.870	.860	.846	.838	.831	.829	.830	.839	.855	.863	.864	.865	.858	.853	.847	.845	.845	.850	.865	.875	.881	.884	.856
San Francisco Cal.	29.788	.788	.786	.782	.779	.776	.774	.782	.794	.803	.814	.815	.821	.819	.813	.805	.798	.781	.769	.765	.761	.765	.777	.787	.789
San L. Obispo, Cal.	29.743	.745	.745	.743	.738	.735	.736	.740	.747	.757	.763	.770	.771	.762	.752	.744	.736	.727	.720	.717	.718	.722	.731	.743	.742
Santa Fe, N. Mex..	23.420	.417	.416	.412	.411	.409	.411	.417	.423	.428	.432	.434	.427	.419	.409	.395	.382	.373	.372	.373	.379	.393	.409	.421	.408
S'lt Ste. Marie, Mich	29.217	.217	.213	.208	.209	.215	.220	.224	.225	.222	.216	.209	.208	.206	.204	.202	.200	.202	.204	.208	.215	.219	.220	.223	.213
Savannah, Ga.....	29.925	.919	.914	.915	.921	.933	.945	.956	.963	.965	.963	.950	.935	.919	.896	.889	.889	.896	.908	.917	.929	.934	.936	.934	.927
Seattle, Wash	29.909	.913	.915	.918	.920	.923	.925	.928	.934	.941	.944	.947	.947	.941	.934	.924	.913	.902	.892	.883	.878	.880	.890	.898	.917
Spokane, Wash....	27.957	.965	.971	.974	.981	.985	.988	.996	.008	.017	.020	.018	.012	.997	.980	.969	.952	.943	.932	.926	.924	.929	.944	.951	.973
Tatoosh Isl'd, Wash	29.988	.987	.987	.987	.986	.983	.983	.984	.987	.995	.002	.006	.011	.013	.013	.011	.009	.005	.999	.992	.985	.981	.982	.984	.994
Toledo, Ohio.....	29.239	.236	.242	.244	.251	.259	.268	.274	.275	.275	.274	.261	.253	.241	.226	.217	.209	.206	.206	.213	.230	.234	.239	.243	.242
Vicksburg, Miss ...	29.713	.710	.709	.708	.713	.720	.733	.745	.753	.757	.760	.756	.741	.724	.706	.695	.687	.684	.685	.688	.696	.708	.715	.716	.718
Washington, D. C..	29.870	.863	.859	.859	.863	.872	.880	.888	.893	.896	.894	.885	.877	.863	.846	.835	.832	.831	.837	.847	.860	.866	.869	.868	.865
Wilmington, N. C..	29.941	.935	.933	.933	.941	.950	.961	.971	.974	.976	.971	.963	.950	.935	.921	.919	.916	.918	.926	.938	.949	.951	.952	.948	.945
Yuma, Ariz	29.640	.646	.650	.649	.650	.652	.659	.666	.686	.694	.697	.697	.687	.675	.653	.629	.600	.581	.570	.568	.573	.587	.610	.627	.639

TABLE VI.—*Average wind movement for each hour of seventy-fifth meridian time, August, 1895.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex.	4.8	4.5	5.1	5.0	4.7	4.7	4.6	5.0	6.4	8.5	9.2	8.8	9.4	9.0	9.0	9.4	9.9	10.5	9.7	8.8	6.5	5.9	5.3	5.2	7.1
Albany, N. Y.	4.6	4.5	4.5	4.4	4.1	3.8	4.5	5.7	6.4	7.6	8.5	9.0	10.1	10.2	9.8	9.5	8.6	7.5	5.9	6.0	5.4	5.4	5.7	4.8	6.5
Alpena, Mich.	5.8	6.1	5.7	5.7	6.2	5.8	6.1	6.8	7.7	7.4	8.4	9.2	9.6	10.3	10.5	10.4	10.6	9.9	8.3	6.2	5.4	5.5	5.7	6.2	7.5
Amarillo, Tex.	13.7	14.0	13.4	12.9	12.3	12.4	12.4	12.4	12.0	13.9	15.4	15.2	14.5	14.5	14.1	14.8	15.1	16.4	17.2	16.0	13.5	12.6	13.2	14.0	14.0
Atlanta, Ga.	6.6	6.8	7.0	6.8	6.3	6.4	6.3	6.1	6.6	6.9	7.4	7.8	7.4	7.5	8.3	8.7	6.9	6.9	6.9	6.5	6.5	7.0	6.7	6.8	7.0
Augusta, Ga.	2.9	2.7	2.5	2.3	2.3	2.3	2.5	3.2	4.1	5.1	5.9	5.6	6.9	7.0	7.1	7.6	7.1	6.0	4.4	4.1	3.6	3.7	3.6	3.5	4.4
Baker City, Oreg.	2.6	3.4	4.0	5.1	5.6	6.0	6.3	6.5	6.5	5.8	4.5	3.2	3.6	4.4	4.5	5.5	6.5	6.8	7.7	8.6	7.9	5.9	4.0	3.2	5.3
Baltimore, Md.	4.8	5.0	4.0	3.7	3.9	3.6	4.4	5.8	7.1	7.6	8.5	9.0	9.8	9.9	10.4	10.5	10.2	8.0	6.4	7.9	5.5	4.9	4.7	4.5	6.6
Bismarck, N. Dak.	6.2	6.0	5.6	6.1	5.4	5.2	5.5	5.5	5.7	7.6	9.8	11.5	12.5	12.9	12.8	12.7	13.6	13.5	13.2	12.2	9.4	8.3	7.6	11.2	9.0
Block Island, R. I.	11.3	10.7	10.1	8.8	9.1	8.8	9.1	9.7	10.3	10.3	10.5	12.0	12.5	13.6	14.0	14.3	13.7	13.1	11.9	12.0	12.2	13.1	12.2	11.4	11.4
Boston, Mass.	8.1	8.0	7.8	7.9	7.2	7.5	8.0	8.2	8.7	9.5	10.6	10.5	11.2	11.6	11.8	12.2	11.9	10.4	9.2	9.2	8.5	8.3	8.1	8.0	9.3
Buffalo, N. Y.	6.8	7.0	7.3	6.7	6.2	6.2	6.7	6.9	7.6	8.3	9.3	10.0	11.0	10.9	11.0	10.6	9.5	9.3	8.5	7.4	6.8	5.7	5.0	6.2	8.0
Cairo, Ill.	4.5	3.8	4.1	4.2	4.1	4.4	4.4	4.4	5.5	5.9	6.3	6.9	7.5	8.1	8.0	8.1	7.6	6.6	5.7	4.7	4.5	3.9	4.2	4.5	5.5
Cape Henry, Va.	7.9	8.2	8.1	8.4	9.0	8.6	8.7	8.8	8.4	8.0	9.1	9.1	9.8	10.3	10.6	10.1	9.6	9.1	8.5	7.8	7.9	7.9	8.3	8.3	8.8
Charleston, S. C.	4.7	4.8	4.9	5.1	4.9	4.9	4.6	5.2	6.3	6.6	7.3	7.9	8.9	9.7	9.7	10.5	9.6	8.4	7.3	6.2	6.2	5.8	5.4	5.5	6.7
Charlotte, N. C.	4.6	4.5	4.1	3.9	3.9	3.8	3.9	4.6	4.7	5.7	6.2	5.8	6.0	5.9	6.7	6.8	6.8	5.9	4.8	5.1	4.3	4.7	4.7	4.5	5.1
Chattanooga, Tenn.	3.7	3.5	3.3	3.2	3.2	2.9	2.6	3.2	3.7	4.6	4.8	5.1	5.5	6.8	7.3	7.0	7.1	6.8	5.8	4.2	3.8	3.2	2.9	3.5	4.5
Cheyenne, Wyo.	7.6	6.7	7.4	7.1	7.2	7.6	7.5	7.3	7.4	7.8	8.7	10.7	10.7	11.1	10.8	10.4	10.6	10.8	8.5	7.9	8.5	7.9	7.2	7.6	8.6
Chicago, Ill.	12.5	13.2	13.4	14.1	13.4	12.9	12.5	12.6	11.8	11.7	13.3	13.7	14.1	14.4	14.6	15.5	15.6	15.5	14.5	14.2	12.0	11.6	11.6	11.5	13.2
Cincinnati, Ohio	4.1	3.9	3.8	3.5	3.7	3.5	3.5	4.3	5.5	6.1	7.0	8.3	9.1	9.6	9.4	9.2	9.4	9.4	8.4	7.4	6.1	5.6	4.5	4.3	6.2
Cleveland, Ohio	8.9	9.3	9.3	9.7	9.5	9.5	9.4	9.4	9.7	10.2	11.7	12.4	13.2	13.0	11.7	10.2	10.8	8.8	7.3	6.2	6.5	6.9	7.5	8.5	9.6
Columbia, Mo.	4.1	3.8	3.6	3.4	3.3	3.5	3.7	4.3	4.3	5.5	6.1	6.5	7.1	7.8	6.9	7.2	7.4	6.7	5.0	4.0	3.7	3.7	3.9	4.2	5.0
Columbus, Ohio	3.9	3.9	3.8	3.6	3.5	4.0	3.5	4.3	4.3	5.9	6.5	7.5	7.6	8.2	8.5	7.9	7.5	7.3	6.1	5.1	4.7	5.0	4.7	4.3	5.5
Concordia, Kans.	5.7	5.5	5.2	4.4	4.3	4.3	7.3	4.1	4.1	5.2	6.8	7.5	7.7	8.5	8.5	8.9	9.0	8.7	8.6	6.8	5.6	5.0	5.5	6.0	6.4
Corpus Christi, Tex.	12.4	10.9	9.9	8.9	8.1	7.3	7.7	7.5	8.7	10.8	11.8	12.9	15.6	17.5	18.6	19.5	19.5	20.1	19.9	18.8	17.9	16.4	15.5	14.0	13.8
Davenport, Iowa	4.6	4.9	4.5	4.9	5.1	4.9	4.5	4.7	5.5	5.9	7.3	8.5	9.2	9.2	9.7	10.2	10.1	10.0	8.4	6.4	5.8	5.5	5.2	4.8	6.7
Denver, Colo.	5.8	5.3	6.1	5.9	5.6	5.9	6.2	6.3	5.7	5.9	5.0	4.9	5.5	6.4	7.5	7.7	7.8	7.9	7.6	8.4	6.9	6.7	6.0	5.8	6.3
Des Moines, Iowa	4.5	4.9	4.1	4.4	4.6	4.8	4.0	4.9	6.0	6.9	8.0	8.4	9.2	10.2	10.2	10.1	10.4	9.9	9.1	7.0	7.2	5.4	4.8	5.1	6.7
Detroit, Mich.	6.5	5.8	5.7	5.6	6.1	6.5	6.0	6.3	7.5	8.7	10.1	10.9	12.3	11.5	12.3	12.0	11.6	10.8	8.8	7.4	7.2	7.2	7.2	6.3	8.2
Dodge City, Kans.	8.5	9.0	8.9	9.2	8.4	8.2	7.7	7.3	9.3	11.5	12.8	12.1	11.8	12.5	12.5	12.5	12.7	12.6	12.4	11.2	9.0	8.2	8.5	9.0	10.2
Duluth, Minn.	8.9	9.3	10.2	10.7	11.1	11.0	9.6	9.2	9.8	9.6	9.7	9.9	10.3	10.7	10.8	9.9	10.0	9.1	7.6	6.9	7.5	8.1	8.8	9.6	9.5
Eastport, Me.	6.3	6.8	6.9	6.9	6.0	7.3	7.1	7.3	7.8	9.2	9.0	9.9	10.3	10.7	10.8	10.5	9.5	8.5	7.2	6.9	7.0	6.9	6.4	6.5	7.9
El Paso, Tex.	7.4	8.5	8.4	9.0	9.0	8.6	8.6	8.4	7.8	8.3	8.4	9.5	8.6	9.1	9.3	9.8	9.8	9.8	7.0	6.9	9.8	6.9	6.4	8.5	8.9
Erie, Pa.	8.1	8.1	8.2	8.2	8.8	8.4	7.9	7.8	7.9	8.3	8.4	9.4	9.8	10.8	9.6	9.2	8.2	7.8	6.2	6.0	6.5	6.2	6.5	8.1	8.0
Eureka, Cal.	3.9	3.6	3.2	2.9	3.1	2.6	2.5	2.9	3.0	2.9	3.0	3.0	3.5	5.0	6.6	7.4	8.3	8.1	8.2	7.8	7.5	6.5	5.5	4.5	4.9
Fort Canby, Wash.	8.5	8.1	7.8	7.8	7.6	7.7	7.5	7.2	6.5	6.5	6.1	6.4	6.5	7.8	8.7	10.0	10.5	10.6	11.4	12.0	12.0	10.4	10.1	8.7	8.6
Fort Smith, Ark.	3.7	3.5	4.0	4.0	4.5	4.2	5.6	4.6	4.6	5.0	4.6	5.2	5.7	5.9	6.2	6.0	5.9	6.2	5.3	4.8	3.8	3.7	3.9	3.4	4.8
Fresno, Cal.	8.8	9.0	8.8	8.5	7.1	7.1	6.2	6.7	7.1	8.3	9.1	9.6	9.6	10.8	11.0	12.0	12.1	11.8	10.6	9.8	8.8	7.9	7.7	8.3	8.2
Galveston, Tex.	8.2	8.2	8.0	7.9	7.6	6.2	6.1	5.6	6.1	6.7	8.8	9.6	10.5	10.3	10.8	10.7	10.7	9.5	8.5	6.8	5.3	4.7	4.5	8.3	8.3
Grand Haven, Mich.	5.5	5.7	6.4	6.3	6.6	6.2	6.1	6.5	7.5	8.8	9.6	10.5	10.3	10.8	9.5	10.7	10.9	11.9	12.1	11.3	10.2	9.1	9.2	5.8	4.9
Green Bay, Wis.	5.7	4.5	4.6	4.7	4.8	4.8	5.0	5.7	5.7	5.9	6.6	7.7	8.9	8.4	8.9	9.4	8.9	8.3	7.4	5.5	5.1	5.5	5.4	5.8	6.4
Hannibal, Mo.	6.5	6.1	6.4	6.2	6.5	5.8	6.6	4.7	6.1	6.7	7.4	8.2	8.9	9.5	9.1	8.8	8.5	8.1	7.7	5.8	5.6	5.7	5.4	5.5	6.9
Harrisburg, Pa.	3.7	3.8	3.5	3.4	3.1	3.4	3.6	3.7	5.2	6.1	7.2	7.6	7.8	8.6	10.7	10.5	10.9	10.3	9.8	6.7	5.4	4.5	4.1	5.6	5.6
Hatteras, N. C.	8.6	8.1	8.0	7.6	8.0	8.0	8.6	8.9	9.1	9.4	9.4	9.2	9.7	10.1	9.5	10.5	10.9	11.1	11.3	10.2	9.1	9.2	9.5	9.0	9.2
Havre, Mont.	5.7	5.5	4.4	4.3	3.8	4.4	4.2	4.5	4.7	7.3	8.0	8.7	9.4	9.7	12.1	11.9	12.1	11.3	10.5	8.9	8.7	6.5	5.8	4.8	7.4
Helena, Mont.	9.0	7.7	8.5	7.3	6.8	6.4	6.7	5.4	4.3	4.6	4.6	5.4	6.6	6.6	7.5	8.3	10.7	10.6	9.5	8.1	7.8	7.8	8.5	8.4	7.7
Huron, S. Dak.	12.3	11.8	11.6	10.7	10.2	10.5	10.2	10.3	11.0	11.7	12.7	13.9	14.8	15.2	14.8	14.8	15.0	15.3	15.0	15.0	13.9	12.3	12.2	12.2	12.7
Idaho Falls, Idaho	7.7	6.9	6.5	6.6	5.9	5.0	4.6	5.3	4.9	4.8	4.8	5.5	6.4	7.8	8.9	8.5	9.6	9.9	10.3	11.0	12.2	11.7	8.2	8.3	7.7
Independence, Cal.	8.2	8.3	6.8	6.0	5.8	5.5	5.6	5.2	4.8	5.8	6.4	6.4	6.4	5.3	5.2	6.9	7.5	7.0	7.1	6.7	6.5	5.9	5.0	9.8	7.7
Indianapolis, Ind.	3.6	3.3	3.0	3.3	3.2	3.2	3.1	3.2	3.4	4.2	5.0	5.7	6.7	7.4	8.0	9.7	8.6	8.1	8.0	7.8	6.5	4.5	4.6	7.5	5.2
Jacksonville, Fla.	5.4	6.1	5.8	5.2	4.9	4.6	4.6	5.0	5.4	5.8	6.5	6.6	7.2	7.4	8.0	9.7	8.6	9.5	9.1	7.7	6.2	6.2	5.5	5.7	5.4
Jupiter, Fla.	5.9	6.3	5.7	6.0	5.7	6.1	5.8	5.4	5.5	6.9	8.2	9.5	10.1	10.6	8.9	9.8	8.6	9.6	8.1	7.2	6.3	5.9	5.2	5.8	6.2
Kansas City, Mo.	5.9	5.7	5.8	6.8	6.8	6.1	6.3	4.5	6.4	6.5	7.1	7.8	8.1	8.8	8.1	8.2	8.6	8.5	8.6	7.2	6.5	5.4	6.0	5.5	6.0
Keokuk, Iowa	4.8	4.7	4.4	4.5	4.8	4.5	4.5	4.8	4.8	5.8	6.3	7.2	8.3	9.0	8.9	8.2	8.1	8.5	8.0	7.8	6.5	4.7	4.5	6.0	5.9
Key West, Fla.	7.0	7.5	7.3	6.0	6.6	6.6	6.2	6.8	7.2	7.7	8.4	8.6	8.5	9.0	8.9	8.8	8.6	8.5	8.4	7.8	7.4	7.4	4.7	7.5	7.5
Kittyhawk, N. C.	9.5	9.7	9.5	9.2	8.7	8.1	8.3	9.5	10.3	10.7	11.2	11.6	11.6	11.7	11.9	12.9	12.9	12.8	11.9	12.3	11.9	11.4	11.2	10.8	10.8
Knoxville, Tenn.	2.1	1.8	1.9	2.3	1.9	2.0	4.5	3.1	4.1	5.4	5.4	6.0	6.0	6.6	6.7	7.1	9.2	8.5	6.2	5.2	6.7	3.8	3.0	2.1	2.1
La Crosse, Wis.	4.4	3.5	4.3	4.5	4.3	4.5	4.6	4.9	5.3	6.1	6.6	7.6	9.0	9.0	9.0	9.2	9.0	9.2	8.5	6.2	6.7	5.4	4.5	4.3	4.2
Lander, Wyo.	3.6	3.6	2.5	2.0	1.7	1.7	2.6	2.3	2.6	2.0	1.7	2.5	2.9	3.4	3.9	4.3	4.1	5.1	4.9	4.5	4.9	4.5	4.5	4.7	4.9
Lexington, Ky.																									
Little Rock, Ark.	3.1	3.0	3.4	3.6	3.8	3.9	3.5	3.7	4.6	4.9	5.4	5.7	6.1	6.6	7.4	7.1	7.2	7.0	6.4	4.9	3.8	3.3	2.7	3.1	4.8
Los Angeles, Cal.	1.2	1.1	0.7	1.0	0.8	0.8	0.8	0.9	1.0	1.1	1.5	2.2	2.3	3.1	4.1	5.4	6.2	6.6	6.6	6.6	5.3	3.9	2.6	1.6	2.8
Louisville, Ky.	3.5	3.7	4.1	3.9	4.2	4.2	3.9	4.7	5.6	5.9	6.6	7.5	8.1	8.7	9.3	9.5	9.3	8.1	7.4	5.5	5.2	5.4	5.1	4.4	6.0
Lynchburg, Va.	1.5	1.4	1.5	1.6	1.4	0.9	1.2	2.1	3.8	4.6	5.1	5.4	6.0	5.7	6.2	6.3	6.4	5.7	4.1	3.0	2.4	1.5	1.5	3.4	5.6
Marquette, Mich.	9.6	9.9	10.6	10.2	9.6	8.3	7.2	8.6	9.2	10.4	11.4	11.7	11.9	13.1	11.7	11.1	10.1	8.9	7.2	6.5	7.3	5.9	9.2	9.6	9.6
Memphis, Tenn.	6.3	6.9	6.7	6.2	6.3	6.0	6.2	6.2	6.8	6.2	7.0	7.2	7.5	7.8	6.6	7.4	7.1	7.2	7.0	6.6	6.2	5.8	5.7	6.0	6.0
Meridian, Miss.	2.2	2.5	2.3	2.2	1.9	1.8	1.9	2.5	3.5	4.1	4.6	7.2	7.9	8.0	8.1	8.2	8.5	8.5	8.3	8.0	6.2	5.8	5.1	2.3	2.5
Miles City, Mont.	3.1	3.3	3.4	3.1	3.7	3.8	3.8	3.7	4.4	5.0	6.2	7.2	7.9	8.0	8.2	8.4	8.5	6.8	5.2	4.5	3.4	2.7	3.1	2.8	3.7
Milwaukee, Wis.	6.0	6.4	6.4	6.8	6.8	6.9	6.9	6.9	7.4	8.3	8.3	10.4	10.4	11.3	11.7	12.0	12.4	11.4	8.4	8.3	7.4	5.3	4.6	3.6	5.6
Mobile, Ala.	4.0	3.9	3.3	4.2	4.5	4.1	3.8	3.5	4.8	5.5	6.3	9.5	9.3	11.7	8.9	9.6	9.8	10.3	8.8	8.4	8.3	6.5	5.2	5.7	5.6
Montgomery, Ala.	3.2	3.5	3.1	3.5	3.4	3.0	2.6	2.8	4.1	4.1	5.2	6.5	8.4	9.8	10.0	10.1	8.2	6.8	6.2	5.6	8.5	8.3	8.1	4.4	4.8
Moorhead, Minn.	8.7	8.3	8.6	8.3	8.0	7.2	7.1	8.0	7.1	8.0	8.8	8.6	8.3	8.2	8.3	8.7	8.9	9.2	8.7	7.9	7.1	7.2	7.0	4.7	4.4
Nantucket, Mass.	7.1	7.1	7.6	7.3	6.7	6.8	7.3	8.0	8.3	8.8	8.8	8.5	8.3	8.2	8.3	8.2	8.9	8.4	8.1	8.6	8.1	7.9	7.0	4.5	4.5
Nashville, Tenn.	3.1	2.8	3.0	2.5	2.5	2.3	2.4	3.3	4.8	5.2	5.3	6.5	8.2	8.3	8.2	8.2	8.4	8.1	8.6	9.4	7.8	7.5	6.9	5.2	4.5
New Haven, Conn.	5.7	4.8	5.1	4.9	4.7	4.6	4.9	6.2	7.6	7.6	8.1	9.3	10.2	11.2	11.6	12.0	10.6	9.4	7.8	7.8	5.7	5.5	5.2	5.0	4.4
New London, Conn.	4.6	4.0	3.9	3.6	3.4	4.3	3.9	4.8	6.1	7.0	7.8	8.4	9.8	10.1	10.0	9.8	8.3	8.2	7.0	5.7	5.5	5.8	4.5	4.7	4.5
New Orleans, La.	3.6	3.9	4.1	4.0	3.5	3.6	3.9	4.9	6.5	7.6	8.5	9.5	10.2	12.0	13.3	14.9	15.1	15.7	14.5	12.8	12.5	12.5	12.0	11.5	10.9
New York, N. Y.	9.4	9.3	8.6	8.0	7.7	7.5	8.0	7.2	6.4	6.4	6.8	9.5	8.3	7.6	7.8	8.5	8.8	8.8	8.1	8.0	6.9	6.9	6.9	6.7	6.9
Norfolk, Va.	6.6	6.2	6.1	6.1	5.2	4.7	5.5	6.0	6.4	7.3	8.8	8.3	8.3	8.3	8.2	8.8	8.5	8.8	8.5	8.5	8.2	8.2	8.2	8.1	8.3
Northfield, Vt.	6.6	6.0	5.7	5.8	5.0	5.2	4.6	4.7	5.6	8.1	10.0	10.0	10.2	11.0	11.1	12.3	12.3	11.5	8.8	8.5	8.5	6.7	6.1	6.7	7.5
North Platte, Nebr.	7.2	7.5	6.6	5.9	5.6	6.0	5.5	6.0	6.3	7.1	8.4	9.9	9.8	10.5	10.9	10.9	11.4	11.5	11.2	10.3	8.8	9.0	8.6	8.3	8.4
Oklahoma, Okla.	5.1	5.4	5.7	5.5	5.3	5.4	5.3	5.4	6.2	7.5	9.6	9.8	9.8	8.7	8.7	8.8	8.5	9.5	8.8	6.8	5.8	5.8	6.1	5.9	6.8
Omaha, Nebr.	6.2	6.9	6.1	5.6	5.4	4.7	4.8	5.5	6.2	9.1	9.9	10.0	9.5	10.2	9.8	9.5	9.3	8.5	8.0	6.9	6.2	5.9	6.0	5.8	7.2
Oswego, N. Y.	7.8	7.8	8.0	7.8	8.2	8.1	8.3	8.9	9.1	9.6	9.9	9.8	9.7	9.8	9.8	10.2	10.3	10.2	9.5	7.1	6.9	6.7	7.6	7.8	8.2
Palestine, Tex.	3.5	3.4	3.4	3.2	3.6	3.3	2.9	3.4	4.8	6.4	7.0	6.7	6.8	6.5	7.0	8.4	7.5	7.2	6.9	6.3	5.5	4.3	3.3	3.4	3.9	4.0	4.9

TABLE VI.—*Average wind movement, etc.*—Continued.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Parkersburg, W. Va..	3.3	3.1	2.7	3.1	2.7	2.9	2.9	3.4	3.9	4.6	5.6	6.0	6.8	7.1	7.5	7.4	6.4	5.5	4.8	4.1	4.1	3.4	3.4	3.6	4.5
Pensacola, Fla.....	5.9	5.8	6.4	6.5	6.3	5.5	6.0	5.7	6.7	7.3	7.7	9.0	10.3	10.7	12.5	13.2	12.2	10.8	8.9	7.1	6.7	6.5	5.8	5.6	7.9
Philadelphia, Pa.....	6.8	6.6	6.3	5.9	5.8	6.5	6.6	7.9	8.6	8.9	9.8	11.0	11.3	12.2	12.5	13.4	12.7	11.8	10.3	9.0	8.0	7.8	7.2	7.1	8.9
Pierre, S. Dak.....	8.7	8.1	7.8	7.2	6.0	5.6	5.6	5.4	6.1	7.2	7.9	8.8	10.4	10.9	10.9	11.6	11.5	11.4	10.6	11.1	9.4	9.2	8.9	8.5	8.7
Pittsburg, Pa.....	3.3	3.5	3.5	3.5	3.7	3.6	3.6	4.4	5.2	5.6	6.5	7.0	7.7	7.8	7.8	7.7	7.2	7.0	5.8	4.3	3.7	3.4	3.9	3.5	5.1
Port Angeles, Wash..	4.8	5.1	4.6	5.0	4.6	5.1	5.1	5.1	4.8	4.2	4.0	5.5	6.2	7.2	7.9	8.6	8.6	9.1	9.7	10.7	9.8	8.0	6.5	5.6	6.5
Port Huron, Mich....	6.9	6.9	6.9	7.1	7.6	7.2	7.0	6.7	7.6	8.7	9.8	9.9	10 4	11.2	11.5	12.7	11.5	10.2	9.3	8.3	7.6	7.6	7.9	6.7	8.6
Portland, Me.....	5.5	5.6	5.5	5.4	5.0	5.0	4.6	5.8	6.3	7.2	8.0	8.7	9.4	10.3	9.6	9.4	9.1	7.1	6.4	5.9	5.6	5.7	5.4	5.1	6.7
Portland, Oreg.....	11.6	9.6	7.8	5.6	4.9	5.0	4.6	4.4	4.7	4.2	5.6	6.9	8.2	8.3	8.7	9.3	9.4	9.8	10.8	12.0	12.2	11.9	11.6	12.1	8.3
Pueblo, Colo.....	5.8	5.3	4.6	4.3	4.4	3.3	3.1	3.8	4.2	5.0	5.2	7.4	7.9	7.9	8.0	8.8	9.9	9.3	10.0	8.4	6.9	6.7	5.6	5.8	6.3
Raleigh, N. C.....	3.4	3.5	3.7	3.6	3.7	3.7	3.7	4.6	4.9	5.3	5.1	5.3	5.2	4.9	5.4	5.1	5.0	4.4	3.5	3.5	3.6	3.9	3.7	3.6	4.3
Rapid City, S. Dak...	8.6	8.1	7.6	7.5	7.2	6.6	7.6	7.9	8.2	8.1	9.8	11.1	13.0	13.3	13.3	13.1	12.9	12.1	11.7	10.2	7.8	6.8	7.2	7.5	9.5
Red Bluff, Cal.....	3.2	4.0	3.9	4.2	4.1	4.0	4.0	4.3	4.4	3.8	4.5	4.8	4.8	4.8	4.9	5.1	6.1	6.1	6.1	6.3	5.5	4.7	4.2	3.2	4.6
Rochester, N. Y.....	5.1	5.3	5.3	5.8	5.8	5.6	6.4	6.9	7.5	7.8	7.7	8.3	8.5	9.1	9.2	8.6	7.9	6.7	5.3	4.1	4.5	4.1	4.1	4.7	6.4
Roseburg, Oreg.....	2.5	2.3	2.2	1.9	1.5	1.5	1.1	1.3	1.4	1.4	1.5	2.8	3.4	4.3	4.7	5.4	6.1	7.2	8.3	8.7	8.4	6.9	5.1	3.6	3.9
Sacramento, Cal.....	8.5	8.4	9.2	9.5	9.4	9.2	9.3	8.5	7.9	7.5	6.7	6.7	6.3	6.7	6.8	7.0	7.5	8.3	8.5	8.5	8.9	9.4	9.5	9.0	8.2
St. Louis, Mo.....	7.0	6.7	7.0	6.3	5.6	6.7	6.2	6.2	7.1	8.0	9.2	9.8	10.7	10.3	10.6	10.4	9.9	9.8	9.1	8.0	7.8	7.8	8.1	7.6	8.2
St. Paul, Minn.....	4.2	3.9	3.7	4.1	4.9	5.6	4.9	5.4	6.2	6.9	8.3	8.9	9.1	9.7	9.5	9.8	9.2	8.0	7.1	6.1	6.4	5.0	4.3	4.5	6.5
St. Vincent, Minn....	6.0	5.8	5.7	5.7	6.1	5.5	4.9	5.2	5.9	7.2	8.0	8.2	8.5	9.5	9.5	9.6	9.7	9.5	8.4	7.5	6.5	6.3	6.3	6.1	7.1
Salt Lake City, Utah.	4.2	4.3	3.8	3.4	3.7	3.5	3.8	3.6	3.7	3.1	3.1	3.5	5.5	7.5	9.2	9.9	9.4	9.9	8.4	7.8	6.4	5.2	5.1	5.2	5.6
San Antonio, Tex.....	8.0	6.6	5.3	4.6	4.4	4.4	4.0	3.8	5.1	7.2	7.7	8.1	7.9	8.1	8.6	8.4	8.8	9.5	10.2	10.4	10.5	10.5	11.3	10.2	7.7
San Diego, Cal.....	2.8	2.2	2.4	2.5	2.2	2.3	2.3	2.6	3.0	2.9	3.6	4.8	6.7	8.6	10.0	10.4	10.4	10.2	9.6	8.5	7.5	5.7	4.8	3.8	5.4
Sandusky, Ohio.....	7.2	6.7	6.6	6.6	6.2	6.1	6.0	6.0	6.6	7.2	7.8	7.9	8.2	8.7	8.3	8.4	7.3	6.4	5.8	5.9	6.4	6.9	7.1	6.7	7.0
San Francisco, Cal...	13.3	11.6	11.1	10.6	10.2	9.0	8.2	8.4	7.6	7.4	8.1	8.1	9.1	11.5	14.2	17.4	20.2	22.3	22.4	23.0	22.3	20.7	18.5	15 0	13.8
San Luis Obispo, Cal.	2.6	2.3	2.3	2.5	2.4	2.3	2.2	2.5	2.7	2.5	2.5	3.0	3.5	4.3	5.5	6.3	6.9	6.7	6.5	6.5	5.2	4.2	3.5	3.2	3.8
Santa Fe, N. Mex.....	5.5	4.9	4.8	4.1	4.0	3.5	3.2	3.6	3.5	4.2	5.9	5.6	6.0	6.4	7.6	7.8	6.8	7.2	7.4	7.0	5.6	5.9	6.7	7.3	5.6
Sault Ste Marie, Mich.	4.6	4.3	4.1	4.0	4.4	4.4	4.3	5.5	6.4	7.2	8.9	9.9	10.3	10.8	11.5	11.7	11.5	11.5	9.6	8.3	7.1	6.2	5.7	4.6	7.4
Savannah, Ga.....	4.9	4.8	4.3	4.4	4.5	4.4	4.6	4.7	5.5	6.1	6.6	7.1	7.6	8.0	8.5	9.4	9.0	8.4	6.9	5.8	5.5	5.1	4.7	4.7	6.1
Seattle, Wash.....	2.6	2.3	2.0	1.8	1.7	2.2	2.1	1.9	2.0	2.0	2.2	2.6	3.2	3.9	4.5	5.2	6.1	5.9	5.6	5.5	5.4	3.9	3.5	2.7	3.4
Shreveport, La.....	4.4	4.0	3.9	3.3	3.3	3.1	3.2	3.5	4.2	4.8	4.9	5.0	5.2	6.0	6.4	6.4	6.6	6.6	6.1	4.9	4.8	5.4	4.9	4.5	4.8
Sioux City, Iowa.....	7.5	7.5	7.0	6.9	7.2	7.1	6.8	7.4	8.2	9.9	10.9	11.5	11.5	12.0	11.7	12.3	11.7	11.1	10.2	8.9	8.4	8.7	7.8	8.0	9.2
Spokane, Wash.....	3.6	3.3	3.5	3.4	3.6	3.2	3.2	3.0	3.1	3.7	4.5	5.2	6.1	6.5	6.8	7.6	8.2	8.3	8.1	7.6	7.1	5.9	5.8	4.7	5.2
Springfield, Ill.....	6.0	5.6	5.6	5.8	6.0	6.0	5.7	5.5	5.9	6.9	7.5	8.4	8.6	9.2	9.6	9.8	9.1	8.7	7.7	5.9	5.4	5.3	5.8	6.3	6.9
Springfield, Mo.....	6.0	6.4	6.5	6.9	6.2	6.5	6.5	6.0	6.7	7.4	7.6	7.8	7.3	7.0	7.1	7.8	7.2	7.6	6.8	6.0	6.5	6.4	7.0	7.0	6.8
Tampa, Fla.....	3.6	3.8	4.0	3.8	3.7	3.6	3.7	4.2	5.6	5.9	6.2	6 5	6.5	6.9	7.0	7.3	6.9	6.2	5.4	4.2	4.2	3.6	4.1	3.8	5.0
Tatoosh Island, Wash.	6.7	7.4	7.4	7.0	6.6	7.0	6.9	6.7	6.7	7.1	7.2	7.4	7.0	7.0	7.8	8.5	8.5	8.5	7.8	7.8	8.0	8.1	7.2	7.0	7.4
Titusville, Fla.....	7.9	7.2	6.9	6.6	6.2	5.8	5.8	6.5	7.3	8.2	8.9	9.3	10.4	12.3	13.8	14.2	12.7	13.0	12.5	10.6	9.5	8.8	8.4	7.5	9.2
Toledo, Ohio.....	7.2	7.0	7.0	6.6	6.4	6.2	6.2	6.3	7.2	7.5	8.4	9.3	10.2	10.5	10.6	9.8	10.0	9.6	8.1	6.8	7.0	6.8	6.9	7.0	7.9
Vicksburg, Miss.....	4.2	3.7	3.6	3.8	3.8	4.0	3.9	3.8	4.1	4.1	4.6	4.6	5.8	5.7	6.3	5.9	6.4	6.0	5.9	3.9	3.8	4.3	4.5	4.5	4.6
Vineyard Haven, Mass	5.9	5.6	5.8	5.5	5.5	5.7	5.6	6.1	7.2	8.0	8.2	8.5	8.5	9.4	9.7	10.0	9.5	8.3	7.2	7.1	7.0	7.0	6.8	6.5	7.3
Walla Walla, Wash...	5.3	5.2	4.6	4.5	4.6	4.4	4.7	4.8	4.5	4.1	4.1	5.1	5.6	6.0	5.8	5.7	5.7	5.9	6.0	5.3	5.2	4.9	5.5	6.1	5.1
Washington, D. C.....	3.5	3.0	2.9	2.8	2.7	2.8	3.0	4.3	6.1	7.2	7.1	7.7	8.1	8.0	8.1	7.3	7.1	6.2	5.3	4.2	4.0	3.8	4.0	3.7	5.1
Wichita, Kans.....	5.6	5.6	5.1	5.4	5.3	5.0	5.0	5.4	5.9	7.0	7.1	7.4	8.5	7.8	8.1	8.4	8.0	7.5	6.5	5.5	4.9	5.0	5.4	6.4	6.3
Williston, N. Dak.....	6.4	5.6	5.2	5.3	5.6	6.0	6.2	5.6	6.4	7.0	9.2	10.2	11.2	11.9	12.2	13.0	14.7	14.9	13.9	11.9	10.2	9.0	7.8	6.4	9.0
Wilmington, N. C.....	4.0	3.7	4.3	3.8	3.9	3.7	4.5	4.7	5.5	6.5	6.9	6.9	8.4	8.5	8.5	9.3	9.3	7.7	6.6	5.7	5.1	5.1	4.9	4.4	5.9
Winnemucca, Nev....	6.9	7.7	8.0	8.6	8.6	8.7	8.2	7.3	7.2	6.1	6.6	7.9	8.2	8.4	8.8	10.5	11.1	11.4	11.0	10.5	9.7	8.3	7.3	7.4	8.5
Woods Hole, Mass....	12.2	11.4	11.6	11.0	10.2	10.3	10.6	11.3	12.1	12.1	11.8	12.0	14.0	15.6	15.4	15.8	16.1	14.5	13.8	13.4	13.3	12.7	13.0	12.7	12.8
Yuma, Ariz.....	6.3	5.5	6.2	6.6	6.4	5.0	4.6	3.8	4.0	4.9	7.4	8.2	8.7	8.4	8.1	8.3	9.2	9.4	9.9	10.3	11.0	10.8	9.7	8.0	7.5

TABLE VII.—*Heights of rivers above low-water mark, August*, 1895.

Stations.	Distance to mouth of river.	Danger-point on gauge.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
Mississippi River.	*Miles.*	*Feet.*	*Feet.*		*Feet.*		*Feet.*	*Feet*
St. Paul, Minn.....	2,057	14.0	2.3	15	0.8	7	1.6	1.5
La Crosse, Wis.....	1,867	10.0	3.4	1	1.8	31	2.4	1.6
Dubuque, Iowa.....	1,759	15.0	2.9	1,24	1.0	20	1.8	1.9
Davenport, Iowa.....	1,653	15.0	1.9	1	0.6	20-23	1.2	1.3
Keokuk, Iowa.....	1,523	14.0	2.9	1	—0.1	23,24	1.0	3.0
Hannibal, Mo.....	1,462	17.0	4.3	1	0.5	23,24	1.6	3.8
St. Louis, Mo. ‡.....	1,321	30.0	13.3	1,2	6.1	19	8.3	7.2
Memphis, Tenn.....	910	33.0	10.0	6	1.8	24,25	5.2	8.2
Helena, Ark.....	834	37.0	15.3	7	3.9	26	9.1	11.4
Arkansas City, Ark...	702	42.0	21.1	9	6.0	29,30	13.4	15.1
Greenville, Miss.....	662	40.0	17.3	9	5.1	29,30	11.1	12.2
Vicksburg, Miss.....	541	41.0	17.8	10,11	3.4	30,31	11.5	14.4
New Orleans, La.....	108	13.0	6.2	16	3.8	21-23	4.6	2.4
Illinois River.								
Beardstown, Ill.....	76	12.0	7.0	1	6.1	9,10	6.4	0.9
Missouri River.								
Pierre, S. Dak.....	1,132	13.0	4.0	1-3	2.4	31	3.4	1.6
Sioux City, Iowa.....	802	18.7	8.9	1	7.0	31	7.9	1.9
Omaha, Nebr.....	667	18.0	9.7	1	7.9	31	8.7	1.8
Kansas City, Mo.....	396	21.0	12.1	22	9.1	14	10.4	3.0
Ohio River.								
Parkersburg, W. Va.	786	38.0	3.0	15	1.0	29-31	2.0	2.0
Catlettsburg, Ky.....	652	50.0	6.4	21	3.4	13	4.7	3.0
Cincinnati, Ohio.....	500	45.0	9.0	1	5.0	16,17	6.1	4.0
Louisville, Ky.....	368	34.0	6.4	1	3.2	20,21	4.2	3.2
Evansville, Ind.....	184	30.0	9.3	1,3	2.3	21,22	4.3	7.0
Paducah, Ky.....	47	40.0	8.8	3	2.1	23	3.9	6.7
Cairo, Ill.....	1,140*	40.0	17.7	4	6.4	23	10.5	11.3
Monongahela River.								
Pittsburg, Pa.....	966†	22.0	6.3	10,30	4.7	23	5.7	1.6
Great Kanawha River.								
Charleston, W. Va....	61	30.0	6.0	20	4.3	6-8	4.8	1.7

Stations.	Distance to mouth of river.	Danger-point on gauge.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
Scioto River.	*Miles.*	*Feet.*	*Feet.*		*Feet.*		*Feet.*	*Feet*
Circleville, Ohio.....	65	13.0	1.4	21-31	0.6	17-20	0.9	0.8
Big Sandy River.								
Louisa, Ky.....	26	.....	10.5	19	2.9	16	5.2	7.6
Wabash River.								
Mount Carmel, Ill....	50	15.0	1.0	1	0.2	28-31	0.6	0.8
Cumberland River.								
Burnside, Ky.....	404	50.0	4.0	1	1.0	30	2.5	3.0
Nashville, Tenn.....	145	40.0	7.5	1	2.2	27	3.8	5.3
Tennessee River.								
Knoxville, Tenn.....	640	29.0	.....	.....	.....	.....	.....	.....
Chattanooga, Tenn...	455	33.0	6.1	22	2.7	16	3.9	3.4
Johnsonville, Tenn...	94	21.0	7.6	2	2.4	{11, 16-18, 20,21}	3.9	5.2
Arkansas River.								
Fort Smith, Ark.....	351	22.0	19.6	1	5.4	24,25	9.8	14.2
Little Rock, Ark.....	176	23.0	19.1	3	6.8	28	11.1	12.3
Red River.								
Shreveport, La.....	449	29.2	29.5	1	6.0	31	17.3	23.5
James River.								
Lynchburg, Va.....	251	18.0	0.5	1	0.1	9,29-31	0.2	0.4
Congaree River.								
Columbia, S. C.....	.....	15.0	3.4	17	0.6	2	1.7	2.8
Savannah River.								
Augusta, Ga.....	140	32.6	30.0	23	5.8	2,3	10.7	24.2
Alabama River.								
Montgomery, Ala.....	215	48.0	11.0	24	1.7	8	4.4	9.3
Willamette River.								
Portland, Oreg.....	.....	15.0	7.5	1	2.8	29	5.5	4.7
Sacramento River.								
Red Bluff, Cal.....	.....	20.0	1.0	1-4	0.7	31	0.9	0 3
Sacramento, Cal.....	.....	28.0	11.8	1,2	9.5	20,31	10.4	2.3

*To mouth of Mississippi River. †To mouth of Ohio River ‡Record for 29 days.

TABLE VIII.—*Temperature of the wet-bulb thermometer, August, 1895.*

Stations.	Local time faster or slower than 75th meridian time.	8 A. M.			8 P. M.		
		Max.	Min.	Mean.	Max.	Min.	Mean.
New England.	h. m.	°	°	°	°	°	°
Eastport, Me	32 F.	62	49	56	62	50	56
Portland, Me	19 F.	69	50	60	69	49	62
Northfield, Vt	9 F.	64	46	57	69	47	60
Boston, Mass	16 F.	70	48	62	72	52	64
Nantucket, Mass	20 F.	72	51	65	70	52	64
Woods Hole, Mass	17 F.	.....	.....	.....	70	54	65
Block Island, R. I	14 F.	72	53	66	72	55	66
New Haven, Conn	8 F.	74	54	65	72	53	66
New London, Conn	12 F.	75	56	65	72	57	66
Middle Atlantic States.							
Albany, N. Y	5 F.	70	52	64	73	50	64
New York, N. Y	4 F.	73	53	66	76	58	68
Harrisburg, Pa	7 S.	73	52	65	76	56	68
Philadelphia, Pa	0	76	51	66	76	56	68
Baltimore, Md	6 S.	74	50	66	76	57	69
Washington, D. C	8 S.	73	54	68	76	59	70
Lynchburg, Va	16 S.	73	57	68	75	58	69
Norfolk, Va	5 S.	76	69	72	77	62	72
South Atlantic States.							
Charlotte, N. C	23 S.	72	57	68	76	60	70
Hatteras, N. C	2 S.	78	66	74	78	65	74
Kittyhawk, N. C	3 S.	78	66	73	80	65	74
Raleigh, N. C	14 S.	74	58	70	76	61	71
Wilmington, N. C	12 S.	77	67	73	78	66	74
Charleston, S. C	20 S.	78	70	75	80	69	75
Augusta, Ga	27 S.	75	65	72	78	65	73
Savannah, Ga	24 S.	80	74	76	79	70	75
Jacksonville, Fla	26 S.	77	74	76	78	71	75
Florida Peninsula.							
Jupiter, Fla	20 S.	78	74	77	78	72	75
Key West, Fla	27 S.	78	73	76	78	73	76
Tampa, Fla	30 S.	79	73	76	79	72	75
Titusville, Fla	23 S.	78	73	77	80	72	76
Eastern Gulf States.							
Atlanta, Ga	37 S.	73	60	70	75	61	71
Pensacola, Fla	49 S.	79	72	76	79	73	76
Mobile, Ala	52 S.	78	72	75	78	72	75
Montgomery, Ala	45 S.	76	65	73	78	70	74
Meridian, Miss	55 S.	74	68	72	79	70	74
Vicksburg, Miss	1 03 S.	75	70	73	78	70	74
New Orleans, La	1 00 S.	77	71	75	78	71	75
Western Gulf States.							
Shreveport, La	1 14 S.	75	69	73	80	72	76
Fort Smith, Ark	1 17 S.	73	66	70	78	70	75
Little Rock, Ark	1 08 S.	74	65	70	76	69	73
Corpus Christi, Tex	1 30 S.	80	74	77	80	76	78
Galveston, Tex	1 19 S.	80	76	78	80	74	78
Palestine, Tex	1 22 S.	75	67	72	79	70	75
San Antonio, Tex	1 34 S.	75	67	72	76	67	71
Ohio Valley and Tenn.							
Chattanooga, Tenn	41 S.	74	59	69	76	64	72
Knoxville, Tenn	36 S.	72	58	68	77	61	71
Memphis, Tenn	1 00 S.	76	61	71	78	66	73
Nashville, Tenn	47 S.	73	58	68	76	62	72
Lexington, Ky	38 S.	73	56	66	77	60	68
Louisville, Ky	43 S.	72	54	65	74	61	69
Indianapolis, Ind	44 S.	74	54	64	77	56	67
Cincinnati, Ohio	38 S.	72	52	64	74	57	66
Columbus, Ohio	32 S.	71	51	63	72	54	65
Pittsburg, Pa	30 S.	72	52	64	76	56	66
Parkersburg, W. Va	26 S.	72	53	65	74	59	68
Lower Lake Region.							
Buffalo, N. Y	15 S.	70	50	61	70	54	63
Oswego, N. Y	6 S.	69	50	61	69	50	62
Rochester, N. Y	11 S.	68	50	61	70	50	62
Erie, Pa	20 S.	72	50	63	70	52	63
Cleveland, Ohio	27 S.	71	49	62	71	52	65
Sandusky, Ohio	30 S.	70	52	63	72	52	65
Toledo, Ohio	34 S.	70	50	62	72	54	64
Detroit, Mich	32 S.	69	50	61	72	54	64
Upper Lake Region.							
Alpena, Mich	34 S.	64	45	57	68	48	59
Grand Haven, Mich	45 S.	69	48	61	69	52	63
Marquette, Mich	49 S.	67	47	57	68	48	59
Port Huron, Mich	30 S.	68	47	59	70	50	62
Sault Ste. Marie, Mich	37 S.	64	46	54	63	46	56
Chicago, Ill	50 S.	70	51	62	72	54	64

Stations.	Local time faster or slower than 75th meridian time.	8 A. M.			8 P. M.		
		Max.	Min.	Mean.	Max.	Min.	Mean.
Up. Lake Region—Con.	h. m.	°	°	°	°	°	°
Milwaukee, Wis	51 S.	70	50	61	70	54	63
Green Bay, Wis	52 S.	68	48	59	72	50	62
Duluth, Minn	1 08 S.	65	46	57	69	50	60
North Dakota.							
Moorhead, Minn	1 27 S.	66	38	53	68	47	60
St. Vincent, Minn	1 29 S.	62	37	51	69	46	59
Bismarck, N. Dak	1 42 S.	65	37	50	68	51	60
Williston, N. Dak	1 54 S.	61	33	49	67	49	58
Upper Mississippi Valley.							
St. Paul, Minn	1 12 S.	66	44	56	71	50	62
La Crosse, Wis	1 05 S.	72	48	60	72	57	65
Davenport, Iowa	1 02 S.	71	51	67	77	52	66
Des Moines, Iowa	1 14 S.	72	52	62	75	54	66
Keokuk, Iowa	1 06 S.	72	54	64	76	56	68
Cairo, Ill	56 S.	75	61	69	77	65	72
Springfield, Ill	58 S.	73	56	64	79	56	68
Hannibal, Mo	1 05 S.	73	57	65	78	58	70
St. Louis, Mo	1 01 S.	74	60	67	78	63	70
Missouri Valley.							
Columbia, Mo	1 09 S.	.....	.....	.....	77	58	70
Kansas City, Mo	1 18 S.	72	57	66	77	59	70
Springfield, Mo	1 13 S.	71	59	66	75	66	71
Omaha, Nebr	1 24 S.	72	52	64	78	54	68
Sioux City, Iowa	1 26 S.	71	46	60	75	54	65
Pierre, S. Dak	1 41 S.	71	45	58	71	55	65
Huron, S. Dak	1 32 S.	68	39	55	73	52	63
Northern Slope.							
Havre, Mont	2 19 S.	59	33	45	68	48	57
Miles City, Mont	2 03 S.	60	40	51	68	52	60
Helena, Mont	2 28 S.	57	34	46	63	44	55
Rapid City, S. Dak	1 53 S.	63	44	52	64	53	59
Cheyenne, Wyo	1 59 S.	57	41	49	63	49	58
Lander, Wyo	2 15 S.	54	39	46	68	52	58
North Platte, Nebr	1 43 S.	67	50	58	74	55	66
Middle Slope.							
Denver, Colo	2 00 S.	59	47	52	72	55	60
Pueblo, Colo	1 58 S.	62	49	55	66	57	61
Concordia, Kans	1 31 S.	71	56	65	75	59	69
Dodge City, Kans	1 40 S.	69	53	63	73	61	68
Wichita, Kans	1 29 S.	73	60	67	83	65	73
Oklahoma, Okla	1 30 S.	73	61	68	78	68	73
Southern Slope.							
Abilene, Tex	1 39 S.	72	63	68	72	63	70
Amarillo, Tex	1 47 S.	66	58	62	68	62	66
Southern Plateau.							
El Paso, Tex	2 06 S.	65	57	62	69	60	65
Santa Fe, N. Mex	2 04 S.	56	46	52	60	51	56
Phœnix, Ariz. *	2 28 S.	76	56	68	75	65	72
Yuma, Ariz	2 38 S.	79	54	70	78	63	73
Independence, Cal	2 53 S.	63	41	50	70	48	60
Middle Plateau.							
Carson City, Nev	2 59 S.	56	35	45	65	44	56
Winnemucca, Nev	2 51 S.	53	36	43	60	48	55
Salt Lake City, Utah	2 27 S.	62	43	53	65	54	60
Northern Plateau.							
Baker City, Oreg	2 51 S.	52	34	44	64	48	57
Idaho Falls, Idaho	2 28 S.	58	34	45	61	48	56
Spokane, Wash	2 49 S.	57	37	46	62	48	55
Walla Walla, Wash	2 53 S.	58	43	51	70	56	62
N. Pac. Coast Region.							
Fort Canby, Wash	3 16 S.	58	49	53	62	51	56
Port Angeles, Wash	3 14 S.	55	38	48	63	51	55
Seattle, Wash	3 09 S.	58	46	52	65	54	58
Tatoosh Island, Wash	3 19 S.	60	46	51	62	49	54
Portland, Oreg	3 11 S.	61	46	52	67	53	60
Roseburg, Oreg	3 13 S.	59	45	48	70	53	61
Mid. Pac. Coast Region.							
Eureka, Cal	3 17 S.	55	47	51	59	51	54
Red Bluff, Cal	3 09 S.	64	51	56	72	56	65
Sacramento, Cal	3 06 S.	60	49	54	75	56	66
San Francisco, Cal	3 10 S.	56	51	53	60	51	55
S. Pac. Coast Region.							
Fresno, Cal	2 59 S.	62	49	54	69	56	64
Los Angeles, Cal	2 53 S.	62	50	56	66	57	63
San Diego, Cal	2 49 S.	63	52	61	67	57	63
San Luis Obispo, Cal	3 03 S.	58	44	53	64	53	60

* Record for 26 days.

TABLE IX.—*Resultant winds from observations at 8 a. m. and 8 p. m., daily, during August, 1895.*

Stations.	Component direction from—				Resultant.	
	N.	S.	E.	W.	Direction from—	Duration.
New England.	*Hours.*	*Hours.*	*Hours.*	*Hours.*	°	*Hours.*
Eastport, Me	11	30	6	26	s. 46 w.	28
Portland, Me	15	25	11	30	s. 62 w.	22
Northfield, Vt	12	35	6	21	s. 33 w.	38
Boston, Mass	12	24	11	29	s. 56 w.	22
Nantucket, Mass	21	11	11	35	n. 67 w.	26
Woods Hole, Mass.*	3	20	5	8	s. 10 w.	17
Block Island, R. I	11	24	8	35	s. 64 w.	30
New Haven, Conn	16	26	8	27	s. 62 w.	22
New London, Conn	16	23	7	32	s. 74 w.	26
Middle Atlantic States.						
Albany, N. Y	16	25	13	20	s. 38 w.	11
New York, N. Y	10	26	11	29	s. 48 w.	24
Harrisburg, Pa	14	18	17	24	s. 60 w.	8
Philadelphia, Pa	16	23	9	27	s. 69 w.	19
Baltimore, Md	11	28	11	27	s. 43 w.	23
Washington, D. C	13	28	15	18	s. 11 w.	15
Lynchburg, Va	14	24	15	28	s. 52 w.	16
Norfolk, Va	9	37	16	19	s. 6 w.	28
South Atlantic States.						
Charlotte, N. C	5	28	22	24	s. 5 w.	23
Hatteras, N. C	8	28	15	28	s. 33 w.	24
Kittyhawk, N. C	9	28	18	26	s. 33 w.	21
Raleigh, N. C	10	35	8	22	s. 29 w.	29
Wilmington, N. C	11	32	17	24	s. 32 w.	13
Charleston, S. C	10	29	18	24	s. 18 w.	20
Augusta, Ga	16	21	22	16	s. 50 e.	8
Savannah, Ga	9	32	9	25	s. 35 w.	28
Jacksonville, Fla	3	35	21	18	s. 5 e.	32
Florida Peninsula.						
Jupiter, Fla	6	28	24	13	s. 26 e.	25
Key West, Fla	9	19	38	6	s. 73 e.	34
Tampa, Fla	8	18	30	12	s. 61 e.	21
Titusville, Fla	6	28	24	16	s. 20 e.	23
Eastern Gulf States.						
Atlanta, Ga	8	16	22	23	s. 7 w.	8
Pensacola, Fla	15	21	13	31	s. 72 w.	19
Mobile, Ala	17	16	14	27	n. 86 w.	13
Montgomery, Ala	15	28	22	15	s. 28 e.	15
Meridian, Miss	15	29	17	24	s. 27 w.	16
Vicksburg, Miss	14	19	24	15	s. 61 e.	10
New Orleans, La	9	26	19	20	s. 3 w.	17
Western Gulf States.						
Shreveport, La	13	28	28	9	s. 52 e.	24
Fort Smith, Ark	12	12	36	8	e.	28
Little Rock, Ark	16	23	12	27	s. 65 w.	17
Corpus Christi, Tex	3	39	36	4	s. 42 e.	48
Galveston, Tex	1	42	9	21	s. 16 w.	43
Palestine, Tex	14	32	21	10	s. 31 e.	21
San Antonio, Tex	13	22	34	3	s. 74 e.	32
Ohio Valley and Tennessee.						
Chattanooga, Tenn	15	17	19	25	s. 72 w.	6
Knoxville, Tenn	18	30	18	22	s. 63 w.	4
Memphis, Tenn	21	22	13	18	s. 79 w.	5
Nashville, Tenn	24	20	6	26	n. 79 w.	20
Lexington, Ky	8	32	9	30	s. 41 w.	32
Louisville, Ky	11	33	10	22	s. 29 w.	25
Indianapolis, Ind	19	21	9	24	s. 82 w.	15
Cincinnati, Ohio	18	27	16	18	s. 13 w.	9
Columbus, Ohio	15	24	16	20	s. 24 w.	10
Pittsburg, Pa	23	14	8	28	n. 66 w.	22
Parkersburg, W. Va	10	32	19	14	s. 13 e.	23
Lower Lake Region.						
Buffalo, N. Y	14	18	6	38	s. 83 w.	32
Oswego, N. Y	4	29	9	27	s. 36 w.	31
Rochester, N. Y	9	25	6	38	s. 63 w.	36
Erie, Pa	12	24	10	26	s. 53 w.	20
Cleveland, Ohio	16	20	31	10	s. 79 e.	21
Sandusky, Ohio	13	20	20	19	s. 75 e.	27
Toledo, Ohio	17	15	16	25	n. 77 w.	9
Detroit, Mich	21	18	17	25	n. 69 w.	8
Upper Lake Region.						
Alpena, Mich	18	21	11	28	s. 80 w.	17
Grand Haven, Mich	17	20	13	26	s. 77 w.	13
Marquette, Mich	25	18	12	23	n. 58 w.	13
Port Huron, Mich	24	24	9	14	w.	5
Sault Ste. Marie, Mich	18	20	17	25	s. 76 w.	8
Chicago, Ill	18	22	13	18	s. 51 w.	6
Milwaukee, Wis	18	25	16	22	s. 4 w.	9
Green Bay, Wis	17	24	14	16	s. 16 w.	7
Duluth, Minn	23	15	10	34	n. 72 w.	25
North Dakota.						
Moorhead, Minn	26	22	9	15	n. 56 w.	7
St. Vincent, Minn	23	19	8	26	n. 77 w.	18
Bismarck, N. Dak	29	12	16	18	n. 7 w.	17
Williston, N. Dak	26	23	10	19	n. 72 w.	10
Upper Mississippi Valley.						
St. Paul, Minn	20	18	15	29	n. 82 w.	14
La Crosse, Wis	20	30	7	13	s. 31 w.	12
Davenport, Iowa	11	25	13	24	s. 38 w.	18
Des Moines, Iowa	21	26	7	18	s. 66 w.	12
Keokuk, Iowa	14	28	4	30	s. 62 w.	30
Cairo, Ill	19	26	14	16	s. 16 w.	7
Springfield, Ill	14	25	3	31	s. 68 w.	30
Hannibal, Mo	12	31	8	32	s. 51 w.	31
St. Louis, Mo	15	29	11	18	s. 27 w.	16
Missouri Valley.						
Columbia, Mo.*	6	12	13	7	s. 45 e.	8
Kansas City, Mo	20	28	17	12	s. 32 e.	9
Springfield, Mo	11	30	23	17	s. 18 e.	30
Omaha, Nebr	21	27	21	7	s. 67 e.	15
Sioux City, Iowa	21	29	14	9	s. 32 e.	9
Pierre, S. Dak	18	16	24	11	n. 81 e.	13
Huron, S. Dak	25	19	14	17	n. 27 w.	7
Northern Slope.						
Havre, Mont	20	9	11	33	n. 64 w.	25
Miles City, Mont	20	13	14	20	n. 4 w.	9
Helena, Mont	13	18	9	35	s. 79 w.	26
Rapid City, S. Dak	18	20	12	22	s. 79 w.	10
Cheyenne, Wyo	21	19	5	30	n. 85 w.	25
Lander, Wyo	24	17	10	29	n. 70 w.	20
North Platte, Nebr	17	27	16	16	s.	10
Middle Slope.						
Denver, Colo	21	25	11	17	s. 56 w.	7
Pueblo, Colo	20	15	33	19	n. 39 e.	6
Concordia, Kans	16	32	12	10	s. 7 e.	16
Dodge City, Kans	17	34	22	3	s. 48 e.	26
Wichita, Kans	12	36	19	4	s. 32 e.	28
Oklahoma, Okla	8	40	17	9	s. 14 e.	33
Southern Slope.						
Abilene, Tex	8	39	21	9	s. 21 e.	33
Amarillo, Tex	8	38	10	12	s. 4 w.	30
Southern Plateau.						
El Paso, Tex	18	10	37	11	n. 73 e.	27
Santa Fe, N. Mex	12	23	32	13	s. 69 e.	31
Phœnix, Ariz.†	11	13	19	18	s. 27 e.	22
Yuma, Ariz	13	29	11	20	s. 29 w.	18
Independence, Cal	18	17	17	28	n. 85 w.	11
Middle Plateau.						
Carson City, Nev	9	25	13	30	s. 47 w.	23
Winnemucca, Nev	19	17	15	25	n. 79 w.	10
Salt Lake City, Utah	19	24	21	18	s. 31 e.	6
Northern Plateau.						
Baker City, Oreg	22	27	8	20	s. 67 w.	13
Idaho Falls, Idaho	20	28	7	21	s. 60 w.	16
Spokane, Wash	20	19	18	19	n. 45 w.	1
Walla Walla, Wash	11	35	3	20	s. 35 w.	29
North Pacific Coast Region.						
Fort Canby, Wash	47	4	4	15	n. 14 w.	44
Port Angeles, Wash	3	23	5	37	s. 58 w.	38
Seattle, Wash	37	10	11	11	n.	27
Tatoosh Island, Wash	3	31	13	27	s. 27 w.	31
Portland, Oreg	28	10	8	34	n. 55 w.	32
Roseburg, Oreg	40	5	17	13	n. 7 e.	35
Middle Pacific Coast Region.						
Eureka, Cal	14	23	8	31	s. 69 w.	25
Red Bluff, Cal	17	27	23	16	s. 25 e.	17
Sacramento, Cal	1	46	9	21	s. 15 w.	47
San Francisco, Cal	28	17	0	43	n. 76 w.	44
South Pacific Coast Region.						
Fresno, Cal	33	3	3	42	n. 52 w.	49
Los Angeles, Cal	5	10	10	39	s. 80 w.	29
San Diego, Cal	15	10	5	43	n. 83 w.	38
San Luis Obispo, Cal	22	15	4	32	n. 76 w.	29

* From observations at 8 p. m. only.

† Record for 26 days only.

TABLE X.—*Thunderstorms and auroras, August, 1895.*

States.	No. of stations.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total. No.	Total. Days.	
Alabama	56	T.	1	1	2	1	2	3	3	4	4	1	5	3	3	2	1	....	3	....	....	4	3	1	1	....	2	2	3	1	2	2	4	64	27	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Arizona	45	T.	3	2	6	5	3	4	4	3	2	2	1	2	2	3	2	....	1	....	2	2	7	2	2	....	1	1	....	....	....	1	1	64	25	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Arkansas	51	T.	1	2	1	....	3	1	....	2	4	4	3	1	....	....	....	1	....	....	....	6	....	....	....	4	4	3	....	1	3	5	4	53	19	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
California	208	T.	....	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	1	....	....	....	....	....	1	3	4	1	....	....	13	8	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Colorado	88	T.	11	12	6	2	7	8	7	15	7	4	3	2	11	3	3	....	3	3	12	6	6	8	1	....	....	3	10	9	10	11	9	192	28	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	1	A.
Connecticut	22	T.	....	....	....	9	....	....	8	....	3	2	1	9	6	....	....	....	5	4	....	....	1	....	....	....	....	....	....	....	5	....	12	65	12	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Delaware	7	T.	....	....	....	2	....	....	1	....	....	....	....	1	....	....	3	3	1	....	....	....	....	....	....	....	....	....	....	....	2	....	4	17	8	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	1	A.
Dist. of Columbia	4	T.	....	....	....	1	1	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	6	6	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Florida	38	T.	9	9	10	7	7	10	10	5	7	7	9	8	7	8	6	5	3	4	5	4	6	11	5	2	1	6	4	2	4	6	7	194	31	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Georgia	58	T.	....	....	3	1	2	3	1	1	2	2	2	3	3	2	....	....	2	....	....	1	5	4	2	1	....	3	4	1	....	4	2	54	23	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Idaho	35	T.	2	....	1	....	....	8	....	....	....	....	....	....	....	....	1	....	....	....	1	1	2	1	....	....	2	2	1	11	5	2	1	41	15	T.
		A.	....	....	....	....	....	....	....	....	....	1	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	3	A.
Illinois	86	T.	....	....	5	....	14	3	....	1	....	15	8	....	....	1	....	....	1	1	7	4	1	....	16	4	1	8	6	7	15	3	....	121	20	T.
		A.	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	2	A.
Indiana	42	T.	1	....	5	1	....	11	....	....	2	3	8	....	....	....	....	....	3	....	....	....	....	....	1	1	....	6	4	11	8	4	....	69	15	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Indian Territory	7	T.	....	....	....	....	....	....	....	....	....	1	1	....	....	....	1	....	....	....	....	....	....	....	....	1	1	....	....	....	1	....	1	7	7	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Iowa	95	T.	....	4	1	12	1	1	....	9	16	3	2	1	....	6	....	7	3	11	....	....	....	14	24	2	....	1	13	9	1	6	1	148	23	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	....	....	....	....	....	....	....	....	1	4	4	A.
Kansas	83	T.	3	14	1	9	6	....	1	1	12	6	11	....	....	12	8	....	....	....	8	7	....	1	5	5	6	....	4	10	3	6	3	137	28	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Kentucky	42	T.	....	1	....	1	1	3	....	....	4	4	1	....	1	....	....	1	....	....	....	1	....	1	....	5	....	5	1	....	1	3	1	35	19	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	1	A.
Louisiana	53	T.	7	5	7	7	6	7	5	6	4	8	7	11	10	8	4	6	8	7	7	7	6	2	7	7	3	2	1	2	5	4	2	178	31	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Maine	18	T.	....	....	....	1	3	....	1	....	....	....	11	11	2	....	....	....	1	5	....	....	1	....	....	5	....	1	1	....	1	....	....	44	13	T.
		A.	....	....	....	....	....	....	....	....	....	1	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	3	A.
Maryland	40	T.	....	....	....	4	....	5	2	....	....	....	10	4	....	....	5	5	4	....	....	....	....	....	....	4	1	....	7	2	8	6	9	76	15	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Massachusetts	79	T.	....	3	1	2	....	1	10	....	....	....	1	12	....	....	....	....	2	13	....	1	4	....	....	5	1	....	....	12	2	....	25	95	16	T.
		A.	....	1	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	5	5	A.
Michigan	76	T.	....	3	1	....	7	8	....	1	5	7	7	....	....	1	....	1	9	2	....	2	....	2	8	5	....	....	1	8	1	....	....	79	19	T.
		A.	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	4	4	A.
Minnesota	69	T.	5	....	....	9	4	....	3	14	15	2	1	1	14	8	....	15	3	1	1	1	7	15	6	5	4	8	8	3	....	5	1	159	26	T.
		A.	....	....	....	....	....	....	....	....	4	....	7	....	....	....	....	....	1	5	1	....	....	....	....	....	1	....	....	....	....	1	....	....	12	6	A.
Mississippi	82	T.	4	2	2	4	2	4	1	4	5	4	9	6	1	3	2	6	3	3	1	1	2	....	....	1	1	....	6	3	6	5	3	94	28	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Missouri	100	T.	....	1	6	10	17	....	1	3	14	12	....	2	....	8	2	....	2	9	22	13	3	2	14	5	9	5	....	11	19	4	5	199	25	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Montana	34	T.	3	....	....	....	....	1	1	....	....	1	....	....	....	....	....	1	....	....	....	....	1	....	....	....	1	....	....	....	1	1	....	11	9	T.
		A.	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	A.
Nebraska	128	T.	3	1	....	11	2	....	....	8	15	7	5	3	10	10	....	....	....	5	3	1	3	11	10	....	....	....	15	4	1	14	2	144	22	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Nevada	49	T.	....	2	2	1	1	4	....	....	....	....	7	4	3	....	....	....	....	6	1	1	2	1	1	....	....	....	7	2	....	....	....	45	16	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
New Hampshire	23	T.	....	....	1	4	1	....	3	1	....	....	1	3	1	....	....	....	1	13	2	....	....	....	....	2	....	....	....	1	5	....	1	40	15	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	1	6	6	A.
New Jersey	53	T.	....	2	1	21	....	8	16	....	1	....	21	11	3	....	1	11	2	1	....	....	....	....	....	....	....	1	....	10	1	22	133	17	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
New Mexico	32	T.	2	6	1	1	3	3	2	3	2	2	3	3	2	2	2	....	....	....	1	2	1	1	1	1	2	1	3	1	4	2	2	56	28	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
New York	82	T.	....	....	12	17	..	25	12	....	4	1	16	9	4	....	....	3	23	10	....	....	....	....	....	6	....	....	7	10	....	7	166	16	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	1	A.
North Carolina	56	T.	1	....	....	3	2	17	4	10	14	6	6	15	15	6	7	4	4	....	....	13	7	1	....	1	5	11	16	5	6	13	10	302	26	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
North Dakota	35	T.	2	1	4	3	....	....	1	7	4	....	....	....	1	....	....	....	1	....	....	....	4	2	3	....	3	3	....	....	2	....	....	41	15	T.
		A.	....	....	....	....	....	....	....	....	5	1	2	....	1	2	1	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	14	7	A.
Ohio	118	T.	....	....	16	2	14	47	3	1	3	10	40	3	....	....	....	1	38	9	3	1	....	....	....	12	....	8	10	28	26	16	7	298	22	T.
		A.	....	....	....	....	....	....	....	....	5	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6	2	A.
Oklahoma	19	T.	....	1	....	2	....	....	....	....	....	4	4	1	....	4	2	....	..	....	....	2	1	....	....	1	2	....	....	....	....	....	1	25	12	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Oregon	63	T.	....	....	....	....	1	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	1	6	8	10	2	34	8	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Pennsylvania	95	T.	....	....	1	17	2	27	5	....	2	5	28	11	2	....	4	13	10	9	6	1	....	....	1	8	1	....	3	1	9	3	11	180	24	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Rhode Island	8	T.	....	....	....	....	....	....	1	....	....	....	....	3	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	....	3	9	6	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
South Carolina	42	T.	2	....	3	1	....	10	5	7	5	7	6	6	9	6	3	5	6	....	....	7	8	3	2	1	2	8	11	5	3	5	4	140	27	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	1	A.
South Dakota	47	T.	2	2	3	5	....	....	4	4	1	1	1	3	6	....	....	1	....	....	....	....	6	....	2	....	....	....	3	....	....	1	....	45	16	T.
		A.	....	....	....	....	....	....	....	....	3	1	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6	4	A.
Tennessee	40	T.	....	....	....	2	4	8	1	3	9	9	9	6	5	5	3	5	4	1	....	8	1	1	....	4	4	3	4	2	2	5	10	118	26	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Texas	86	T.	1	....	1	1	5	7	2	2	....	2	3	5	2	2	2	7	3	4	4	2	....	1	3	3	....	....	1	2	3	5	1	74	26	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Utah	36	T.	1	1	2	....	....	1	3	4	....	2	2	1	5	1	....	....	....	2	2	2	2	3	....	....	....	1	2	1	....	....	....	38	19	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Vermont	16	T.	....	....	2	4	....	....	5	....	....	1	6	1	....	....	....	....	2	5	....	....	....	....	....	....	....	....	3	1	1	....	....	31	11	T.
		A.	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	A.
Virginia	29	T.	....	....	....	....	2	4	2	1	4	3	2	7	4	6	3	1	1	1	1	1	....	....	....	....	....	1	1	1	1	6	2	35	22	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Washington	48	T.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	6	6	1	16	4	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	1	A.
West Virginia	38	T.	....	....	..	1	....	5	....	....	1	2	5	1	....	....	2	1	4	2	....	....	....	....	....	1	....	4	2	2	3	4	4	44	17	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Wisconsin	61	T.	....	6	2	4	19	1	2	12	8	8	2	....	2	13	....	5	11	....	....	....	1	6	18	2	1	1	15	7	1	....	....	147	23	T.
		A.	....	....	....	....	....	....	....	....	5	2	2	1	1	....	....	....	....	3	....	....	....	....	....	....	....	1	....	....	....	....	1	14	6	A.
Wyoming	11	T.	1	2	2	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	1	....	1	....	1	....	....	1	10	8	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Sums	2,708	T.	65	81	111	188	142	232	130	122	179	158	268	174	134	120	63	109	167	132	90	104	92	94	133	104	58	101	172	189	208	171	185	4,306	....	T.
		A.	0	1	0	0	0	0	1	0	29	8	14	3	5	2	2	0	1	12	3	2	2	1	0	0	3	2	1	0	0	3	2	97	....	A.

TABLE XI.—*Hourly sunshine as deduced from sunshine recorders, August, 1895.*

Stations.	Instrument.	Percentages for each hour of local mean time ending with the respective hour.																Monthly summary.			
		A. M.								P. M.								Instrumental record.			Personal estimate.
		5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	Actual.	Possible.	Per cent of possible.	
																		Hours.	*Hours.*		
Atlanta, Ga	T.	.....	51	48	52	61	79	85	88	83	76	64	56	49	34	18	.....	254.5	415.4	61	47
Baltimore, Md	T.	.....	74	72	76	88	95	94	96	97	95	87	82	63	59	45	42	341.7	423.6	81	64
Bismarck, N. Dak	P.	50	53	61	69	73	78	81	76	72	77	74	77	67	57	41	28	298.7	440.4	68	69
Boston, Mass	T.	14	52	58	61	67	74	84	83	80	75	79	75	66	55	32	14	289.1	429.9	67	53
Buffalo, N. Y	T.	0	6	9	36	55	65	78	80	85	83	77	75	57	40	18	13	236.3	431.4	55	45
Chicago, Ill	T.	60	36	63	70	87	90	91	93	91	92	93	90	83	70	50	44	338.6	429.3	79	67
Cincinnati, Ohio	T.*	.....	76	70	78	80	89	92	94	92	90	98	97	88	77	61	55	359.0	423.4	85	61
Cleveland, Ohio	P.	25	49	45	67	73	83	88	82	79	73	74	72	72	59	42	57	295.9	428.3	69	57
Columbus, Ohio	T.	0	31	34	60	79	84	82	83	78	79	75	73	59	34	14	13	262.9	425.3	62	48
Denver, Colo	P.	.....	67	79	83	79	85	88	86	77	81	70	74	58	41	40	21	306.3	425.0	72	56
Des Moines, Iowa	T.	75	65	61	69	83	87	85	90	91	91	90	87	87	83	65	54	347.6	428.5	81	65
Detroit, Mich	T.	29	49	55	72	83	85	88	88	89	87	91	89	83	66	50	39	330.6	429.6	77	65
Dodge City, Kans	P.	.....	67	65	69	74	77	82	81	76	77	78	80	79	77	65	71	316.5	421.2	75	65
Eastport, Me	P.	26	42	45	56	58	59	63	59	68	62	66	59	54	51	44	38	244.4	435.2	56	42
Galveston, Tex	P.	.....	48	78	87	90	93	91	86	88	82	83	78	71	61	36	.....	321.4	408.6	79	72
Helena, Mont	P.	80	73	75	82	85	83	84	81	82	83	82	82	83	81	82	86	357.0	439.7	81	76
Kansas City, Mo	P.	.....	52	53	59	64	70	70	69	71	71	74	76	72	58	57	82	278.6	423.3	66	50
Little Rock, Ark	T.	.....	74	78	81	85	83	91	88	88	79	79	75	68	60	48	0	322.4	416.3	77	61
Louisville, Ky	T.	.....	57	54	55	75	90	89	90	91	93	92	76	72	53	45	33	313.6	422.7	74	53
Marquette, Mich	T.	17	19	40	62	76	81	83	83	82	79	82	75	80	56	39	14	290.9	438.8	66	45
New Orleans, La	T.	.....	22	40	67	75	78	75	70	74	76	79	72	43	29	9	.....	247.1	409.0	60	63
New York, N. Y	T.	5	26	34	53	81	91	92	89	90	90	82	75	64	48	28	21	290.0	426.7	68	56
Philadelphia, Pa	T.	100	68	66	67	83	95	94	94	96	97	94	89	80	72	69	67	354.9	425.1	83	57
Phœnix, Ariz	P.†	.....	75	76	83	86	88	88	92	95	96	97	93	85	66	59	.....	294.3	345.5	85	54
Portland, Me	T.	15	45	61	80	84	88	89	93	86	90	92	91	89	77	44	16	341.5	432.5	79	45
Portland, Oreg	T.	100	86	82	79	81	88	94	96	99	97	97	97	97	100	100	100	403.7	436.7	92	88
Do	P.	100	86	82	80	82	89	94	96	100	97	97	97	97	100	100	100	404.3	436.7	93	88
Rochester, N. Y	T.	40	59	61	68	73	76	81	88	85	85	76	73	74	61	43	45	309.8	431.5	72	56
St. Louis, Mo	T.	.....	59	56	65	80	82	85	87	94	89	86	82	81	62	43	50	319.5	422.7	76	60
Salt Lake City, Utah	P.‡	100	67	80	95	97	96	100	95	85	87	87	96	85	78	78	89	375.0	427.0	88	52
San Diego, Cal	P.	.....	6	8	26	43	71	83	93	94	94	95	92	87	74	41	.....	276.9	413.9	67	69
San Francisco, Cal	T.	.....	0	2	14	32	50	77	90	95	95	97	94	72	19	0	0	229.0	421.1	54	59
Santa Fe, N. Mex	P.	.....	64	74	84	85	93	96	88	89	84	78	65	61	41	14	0	307.2	417.5	74	54
Savannah, Ga	P.	.....	48	63	73	75	77	71	70	69	68	62	49	45	27	7	.....	249.8	412.9	59	57
Vicksburg, Miss	P.	.....	42	45	54	68	75	79	85	90	89	75	67	61	47	37	.....	274.6	412.9	66	56
Washington, D. C	P.	.....	68	75	81	82	86	87	86	85	82	80	74	79	65	58	64	330.6	423.2	78	67
Wilmington, N. C	T.	.....	40	47	68	67	71	77	67	64	57	48	57	52	36	24	.....	234.2	415.8	56	54

* Photographic record incomplete. † All values for 26 days only. ‡ Thermometric record discontinued.

TABLE XII.—*Hourly precipitation, August, 1895.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Total.
Atlanta, Ga.*	0.09	0.01	0.24	0.05	T.	T.	0.01	0.02	0.05	0.07	0.16	0.17	0.44	0.61	0.88	1.64	0.76	0.51	0.35	0.53	0.52	0.10	0.73	0.16	8.70
Baltimore, Md	T.	0.00	0.00	0.00	0.00	T.	0.01	0.02	T.	0.00	0.18	0.12	0.00	0.06	0.87	0.26	1.41	T.	T.	T.	0.00	0.00	T.	T.	2.43
Bismarck, N. Dak	0.05	0.08	0.08	0.06	T.	0.01	0.03	0.00	T.	T.	0.00	0.00	0.00	0.01	0.05	0.01	0.00	0.00	0.00	0.02	0.00	T.	0.00	T.	0.38
Boston, Mass	0.00	0.00	0.15	T.	0.06	0.13	0.12	0.03	0.06	0.93	0.70	0.25	0.14	0.17	T.	T.	0.00	0.00	T.	0.37	0.19	0.17	0.01	0.06	3.54
Buffalo, N. Y	T.	0.04	0.11	0.03	0.01	T.	0.01	0.01	T.	T.	T.	0.76	0.14	T.	0.06	0.05	0.03	0.66	0.52	0.24	0.19	T.	T.	T.	2.86
Chicago, Ill.*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cincinnati, Ohio	0.17	0.87	0.07	T.	0.00	T.	T.	0.05	T.	0.02	T.	T.	0.05	0.32	0.14	T.	0.08	0.58	0.11	0.09	0.11	0.10	0.02	0.42	3.20
Cleveland, Ohio	0.00	0.00	0.00	0.12	0.01	0.00	0.00	0.00	0.14	0.02	0.02	0.30	0.29	0.50	0.73	0.94	1.18	0.16	0.01	0.01	0.07	T.	0.02	0.05	4.58
Denver, Colo	0.01	0.02	0.01	0.01	0.01	T.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	0.01	T.	T.	T.	0.02	0.01	0.16	0.17	0.22	0.11	0.76
Detroit, Mich	0.01	0.01	0.01	T.	0.07	0.10	0.15	0.32	0.24	0.01	T.	0.05	0.23	0.08	0.06	0.02	0.24	T.	0.19	0.02	T.	0.01	0.14	0.01	1.97
Dodge City, Kans	0.04	0.00	0.00	0.00	0.00	0.09	0.45	0.28	0.10	0.16	T.	0.03	0.01	0.00	0.00	T.	0.78	0.02	0.00	0.00	0.00	T.	0.03	0.43	2.42
Duluth, Minn	0.16	0.06	0.19	0.02	0.00	0.05	0.01	0.20	0.01	0.02	0.06	0.18	0.09	0.05	0.05	0.25	0.02	0.08	0.04	0.02	0.01	0.01	0.01	0.17	1.67
Eastport, Me	0.14	0.12	0.09	T.	0.01	0.03	T.	T.	T.	0.02	0.10	0.31	0.00	0.89	0.32	0.23	0.25	0.12	0.14	0.46	0.36	0.31	0.16	0.46	5.13
Galveston, Tex	T.	0.02	0.01	T.	T.	0.02	0.01	0.00	0.02	0.12	T.	0.11	0.03	0.05	0.15	0.20	0.42	2.32	0.94	0.09	0.01	0.01	T.	0.01	4.54
Indianapolis, Ind	0.00	0.01	0.01	0.53	0.02	0.01	0.10	0.11	0.08	0.31	0.02	T.	T.	T.	0.48	0.12	0.08	0.01	0.02	T.	T.	0.00	T.	0.00	1.91
Jacksonville, Fla	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.07	T.	0.39	0.42	0.72	0.18	0.47	0.20	0.04	0.00	0.04	0.00	0.00	0.00	2.54
Jupiter, Fla	0.07	0.10	0.05	T.	T.	0.06	0.06	0.12	0.01	0.09	0.17	0.26	0.12	0.06	0.20	0.22	0.08	0.16	1.49	0.08	0.35	0.06	0.00	0.00	3.86
Kansas City, Mo	0.46	0.16	0.36	0.67	0.59	0.07	T.	T.	0.04	0.06	0.13	0.28	0.21	0.12	0.09	0.02	T.	0.07	0.20	0.85	1.09	0.77	0.42	0.52	7.18
Key West, Fla	0.17	0.52	0.20	0.06	0.00	0.15	0.98	0.51	T.	0.07	0.03	0.06	T.	T.	0.11	0.51	0.01	0.06	1.07	0.10	T.	0.00	0.00	0.00	4.08
Little Rock, Ark	0.02	0.01	0.05	0.07	0.04	0.22	0.05	0.22	0.10	0.06	T.	0.04	0.20	0.08	0.04	0.13	0.20	0.37	1.03	0.08	0.33	0.04	T.	0.00	3.39
Louisville, Ky	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.13	0.16	0.01	0.01	0.11	T.	0.36	0.03	0.11	0.02	0.17	0.07	0.01	0.00	0.00	0.00	0.00	1.22
Marquette, Mich	T.	T.	0.05	0.14	0.31	0.15	0.40	0.05	T.	0.01	0.01	T.	0.06	0.13	0.07	0.04	0.08	0.06	0.01	0.02	0.04	0.02	0.02	0.03	1.70
Memphis, Tenn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	T.	0.00	T.	T.	0.04	0.03	0.10	0.05	0.00	0.00	0.00	0.26	0.00	T.	0.15	0.00	0.64
Milwaukee, Wis	0.06	0.01	T.	0.08	0.02	0.19	0.06	0.05	0.05	T.	0.00	0.00	0.07	0.12	0.60	0.26	0.29	0.06	0.05	0.02	0.06	0.05	0.07	0.46	2.63
Nantucket, Mass	0.00	0.00	0.00	0.00	0.20	0.04	0.18	0.87	0.05	0.10	0.03	0.26	0.52	0.66	0.48	0.10	0.60	0.02	0.00	0.00	0.00	0.00	0.00	0.00	4.11
Nashville, Tenn	0.02	T.	0.05	T.	T.	T.	0.00	0.05	T.	0.00	T.	0.04	0.25	0.31	T.	0.14	T.	0.03	0.27	0.16	T.	0.04	0.01	0.03	1.40
New Orleans, La	0.00	0.00	0.00	T.	0.02	0.30	0.23	1.10	0.73	1.21	0.03	0.33	0.13	0.32	0.52	1.54	0.12	0.07	T.	T.	0.12	T.	0.00	0.00	6.79
New York, N. Y	0.26	0.01	0.31	0.05	0.00	0.02	0.28	0.64	0.02	T.	0.02	0.18	T.	T.	0.40	0.03	0.00	1.08	0.37	0.30	0.06	T.	0.02	0.03	4.06
Norfolk, Va	0.03	0.18	0.04	0.13	0.10	0.07	0.05	0.02	0.22	0.06	0.05	0.09	0.09	0.22	0.04	0.01	0.53	0.41	0.01	0.01	0.11	0.02	0.04	0.04	2.58
Omaha, Nebr	0.05	0.01	0.10	0.43	0.13	0.06	0.22	0.25	0.28	0.90	0.25	0.20	0.04	0.31	1.47	0.13	0.06	0.22	0.11	0.22	1.41	0.15	0.16	0.01	7.18
Philadelphia, Pa	0.01	0.01	0.01	0.02	T.	0.01	0.00	T.	T.	T.	0.00	T.	0.01	T.	T.	0.03	0.26	T.	T.	0.01	0.22	T.	T.	T.	0.59
Pittsburg, Pa	0.09	0.10	0.06	0.43	0.01	0.00	0.05	0.12	0.00	T.	0.55	0.05	0.01	0.08	0.08	0.53	0.13	0.82	0.44	0.07	0.14	0.04	0.49	T.	4.29
Portland, Me	0.02	0.04	0.02	0.06	0.06	0.16	0.34	0.46	0.64	0.35	0.20	0.18	0.26	0.12	0.06	0.81	0.06	0.18	0.37	0.26	0.34	T.	0.02	0.04	5.05
Portland, Oreg	T.	T.	0.20	0.01	0.04	0.05	0.03	T.	0.05	T.	T.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
Rochester, N. Y	0.00	T.	0.00	0.11	T.	T.	0.00	T.	0.02	0.02	0.07	0.21	0.05	0.34	0.29	0.57	0.20	0.13	1.00	0.23	0.13	0.01	0.02	T.	3.40
St. Louis, Mo.*	T.	0.01	0.05	0.39	0.11	0.01	T.	0.01	0.06	T.	0.03	T.	T.	0.00	0.27	0.32	0.01	0.18	0.02	T.	T.	0.00	T.	T.	2.09
St. Paul, Minn	0.55	0.05	0.11	0.04	0.04	0.13	0.23	0.01	T.	0.01	T.	T.	T.	0.01	0.64	0.06	T.	0.00	0.01	T.	0.13	0.19	T.	0.38	2.59
Salt Lake City, Utah	T.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	T.	0.00	0.00	0.00	0.00	0.00	T.	0.02
San Diego, Cal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
San Francisco, Cal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Savannah, Ga	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.53	0.06	0.01	0.08	T.	1.43	1.00	0.03	0.16	1.48	2.92	1.01	0.29	0.31	0.33	0.04	0.06	9.76
Seattle, Wash	0.00	0.00	0.00	0.00	0.00	T.	0.04	0.06	0.06	0.03	0.01	T.	T.	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
Vicksburg, Miss	T.	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.10	0.30	0.26	0.37	0.12	0.59	0.48	0.67	0.41	0.32	0.06	0.03	0.01	T.	T.	3.77
Washington, D. C	0.07	0.00	0.01	0.02	0.00	T.	T.	T.	T.	T.	0.02	0.27	T.	0.00	0.03	0.04	0.25	T.	0.06	0.18	0.04	0.02	0.19	T.	1.30
Wilmington, N. C	0.04	0.01	0.05	0.04	0.05	0.04	0.04	0.36	0.08	1.16	0.80	0.16	0.87	1.09	0.30	0.35	0.08	0.12	0.09	0.05	0.04	0.22	0.13	0.45	6.52

* Record incomplete.

TABLE XIII.—*Excessive precipitation, by stations, for August, 1895.*

Stations.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Alabama.	*Inches.*	*Inches.*		*Ins.*	*h. m.*	
Asheville				1.13	1 00	13
Cordova		3.00	16-17			
Daphne	13.85	2.64	16			
Eufaula		4.00	3	4.00	3 05	3
Evergreen		3.10	11-12	2.05	1 30	9
Fort Deposit		2.81	11-12			
Gadsden		3.33	20-21			
Greensboro				1.63	0 30	5
Highland Home	10.81	3.35	3			
Maple Grove		3.25	20-21			
Mobile		2.93	12-13			
Newton				1.56	1 00	5
Do				1.52	1 00	22
Pine Apple		2.50	15			
Rock Mills		3.20	21			
Scottsboro		2.53	21			
Thomasville				1.83	1.20	11
Arizona.						
Calabasas				1.10	1 00	13
Dudleyville				2.00	0 30	8
Farleys Camp				1.50	1 00	6
Mount Huachuca		2.58	23			
Tucson				1.40	1 00	8
Arkansas.						
Bee Branch				1.05	1 00	20
Blanchard Springs		3.53	3			
Corning				1.41	0 50	9
Fort Smith				1.00	0 50	1
Do				1.04	0 45	11
La Crosse				1.09	1 00	30
Lonoke				1.88	0 30	9
Pocahontas				1.25	0 30	9
Washington				1.26	1 00	21
Connecticut.						
Bridgeport		2.60	18			
Canton		3.08	18			
Hartford δ		3.37	7			
Middletown		2.52	18			
New Haven				1.00	0 55	12
Southington		2.60	18			
South Manchester		3.13	18			
Waterbury		3.16	7	1.06	0 45	7
Do		2.83	18			
West Simsbury		3.44	18			
Windsor		2.61	7	1.38	0 30	7
Delaware.						
Dover				1.13	1 00	16
Milford				2.10	1 55	16
Millsboro				1.34	1 00	15
Wilmington				1.08	0 45	29
Florida.						
Bartow				1.70	1 30	22
Brooksville				1.59	0 30	22
Do				1.05	0 20	26
Earnestville		3.20	10-11	2.21	1 00	16
Eustis		2.52	11	1.51	1 00	6
Do				1.53	1 30	16
Fort Meade		2.58	6			
Gainesville				2.45	1 40	3
Jupiter				1.48	1 00	11
Key West				1.13	0 50	6
Moseley Hall		3.25	15			
Myers		2.59	12-13			
Ocala		2.73	26	2.73	2 00	26
Orange Lake		2.60	21	2.60	1 00	21
Pensacola		2.75	28-29			
Tampa				1.60	1 05	21
Tarpon Springs		3.00	11			
Georgia.						
Atlanta		2.52	15-16			
Augusta				1.10	1 00	22
Brag	11.37	3.33	3			
Camak	13.43	3.12	17			
Do		4.17	21-22	4.07	2 30	22
Canton		3.56	15-16			
Clayton	11.24					
Cordele				1.67	0 45	29
Covington		3.47	17			
Dahlonega	15.38	7.34	16			
Diamond	10.40	2.61	27	2.48	2 00	27
Elberton		2.50	20-21			
Fleming		3.76	3			
Fort Gaines				1.58	1 30	11
Gainesville		3.66	15-16			
Griffin	10.03			2.00	2 00	6
Hephzibah		3.80	21-22			
Leverett	13.02	2.50	22			
Macon				2.10	1 45	27
Milledgeville		2.60	3			
Millen		3.67	21-22			
Morgan				1.00	1 00	16
Point Peter		2.55	16			
Reynolds		3.74	3	3.74	2 00	3
Savannah		5.23	3-4	2.75	1 50	3
Do		2.51	21-22	1.15	1 00	22
Union Point		2.78	21-22			
Way Cross				1.03	1 00	12
Waynesboro	11.99	5.50	21-22	2.21	1 40	16
Do				2.65	1 00	21
Do				2.85	1 40	22
West Point				1.50	1 10	3

TABLE XIII.—*Excessive precipitation*—Continued.

Stations.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Georgia—Cont'd.	*Inches.*	*Inches.*		*Ins.*	*h. m.*	
West Point				1.21	1 00	11
Do				1.50	1 00	21
Illinois.						
Ashton		2.51	23-24			
Aurora		3.63	23-24			
Chicago		3.65	23-24			
Clear Creek				1.36	1 00	23
Frederick		3.00	25-26			
La Grange		3.14	23-24			
Martinsville				1.40	0 45	3
Mount Vernon				1.25	0 30	29
Oswego		4.08	23-24			
Rose Hill		3.50	3	3.50	1 30	3
St. Charles		4.00	23-24			
Sycamore		2.61	23-24			
Wheaton		3.12	23-24			
Indiana.						
Terre Haute		2.52	20			
Indian Territory.						
Eufaula		2.90	24			
Tahlequah		2.78	24	2.78	2 00	24
Vinita		3.28	24-25			
Iowa.						
Afton		4.40	27			
Algona		2.55	23			
Ames		2.70	23			
Atlantic		4.18	23			
Atlantic (near)		3.15	23			
Audubon		6.25	23			
Centerville		3.75	23			
Davenport		4.36	23-24	1.93	1 00	23
Elkader		2.87	22-23			
Greenfield		3.25	23	2.80	2 00	23
Guthrie Center		6.70	23			
Hawkeye		4.26	22-23			
Logan		4.86	23			
Madrid		3.39	22-23			
Maple Valley		2.69	27			
Neola		3.10	22-23			
Panama	10.63	6.47	22-23			
Portsmouth		6.22	23			
Sac City		4.65	22-23			
Villisca		2.88	27-28			
Washington		2.58	23			
Waukee		2.60	23			
Winterset		2.63	23			
Kansas.						
Beloit		2.50	9			
Blaine		2.60	14			
Burlington		3.50	19			
Campbell		2.62	19			
Cunningham		2.80	23-24			
Downs				1.91	1 15	11
Emporia	12.45	2.50	19			
Do		3.85	23-24			
Frankfort		3.30	19			
Halstead		3.76	2			
Hays				1.00	0 30	11
Horton		2.67	10			
Lawrence	12.30	5.38	14-15			
Macksville		2.50	31			
Manhattan	10.74	5.91	19-20			
Morland		2.75	1-2			
Olathe	11.45	3.10	19-20			
Wamego	10.07	3.86	19	3.86	1 30	19
Do		2.91	29-30	2.60	2 00	30
Wichita		3.09	2	1.06	1 00	2
Yates Center		2.66	18-19			
Kentucky.						
Earlington				2.00	1 45	26
Marrowbone				1.27	1 00	16
Pryorsburg				1.59	1 10	25
Louisiana.						
Cheneyville				1.15	0 40	5
Covington		4.20	15-16			
Farmerville		3.44	3			
Mellville				1.00	1 00	25
New Iberia		3.25	4			
New Orleans		2.67	15-16			
Oberlin				1.00	1 00	28
Paincourtville				1.30	1 00	10
Do				1.39	1 00	16
Rayne				1.81	1 45	8
Shell Beach				1.92	1 30	10
Southern University				1.50	1 00	20
Thibodeaux				1.26	1 00	11
Do				1.55	0 30	17
Maryland.						
Oldtown				1.25	1 00	6
Massachusetts.						
Mystic Lake				2.29	0 15	7
Mystic Station		2.56	7			
Nantucket		2.94	12			
Winchester		2.74	7			
Winthrop		2.95	18			
Michigan.						
Allegan		3.91	23-24			
Hastings		2.93	23-24			
Kalamazoo		3.76	23-24			
Lansing		2.98	23-24			
Olivet		3.23	23-24			

TABLE XIII.—*Excessive precipitation*—Continued.

Stations.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Minnesota.	*Inches.*	*Inches.*		*Ins.*	*h. m.*	
Belleplaine				1.45	1 05	13
Bird Island				1.05	1 00	16
Milan				1.05	0 25	16
Pleasant Mounds				1.06	1 00	8
Roseau				2.44	0 30	26
Mississippi.						
Briers		3.50	4			
Columbus		2.83	8			
Do		2.66	10-11			
Greenville		2.80	13-14			
Hazlehurst		3.50	2			
Moss Point	12.60					
Missouri.						
Bethany		5.50	28-29			
Conception		4.15	28-29	2.08	1 10	23
Do				1.30	1 00	29
Fairport		2.98	28-29	2.40	1 00	23
Gallatin		4.06	28-29			
Gayoso				1.84	1 00	10
Harrisonville		3.30	19-20			
Humansville				1.12	1 00	9
Kidder		2.53	23	2.51	1 00	23
Langdon		2.50	4			
Do		2.63	28			
McCune		2.50	10			
Marble Hill				1.05	1 00	10
Marceline		4.00	19			
Olden				1.50	1 00	31
Oregon		3.15	28-29			
Pierce City		3.30	25-26			
Princeton		3.30	28-29			
Sarcoxie				1.52	0 30	9
Steffenville		3.06	29			
Trenton				2.09	1 20	23
Unionville		3.23	28-29			
Nebraska.						
Arborville		4.16	22	1.00	0 30	9
Ashland				1.17	0 40	10
Blue Hill		3.30	30	2.25	1 30	14
Do				3.30	1 30	30
Bratton		2.51	28			
Burwell				1.38	0 35	12
Callaway				2.00	0 40	22
Fairbury		2.85	19	2.05	2 00	9
Fairmont				1.15	0 40	9
Fontanelle		2.64	23			
Gibbon		2.60	14			
Hastings				1.45	1 00	18
Hickman				1.00	1 00	14
Lexington		2.71	13-14			
McCook		2.62	1			
Oakdale				1.16	0 30	10
Do				1.36	0 40	30
Odell		3.00	19			
Omaha				1.19	1 00	4
Do				1.32	1 00	27
Superior		2.85	14			
Tekamah		2.65	23			
New Hampshire.						
Dublin		2.50	18			
New Jersey.						
Cape May C. H				1.25	1 00	31
Elizabeth				1.32	0 30	31
Millville				1.03	1 00	16
Paterson				1.31	1 00	18
New Mexico.						
San Marcial		3.22	29-30			
New York.						
Bedford				1.55	0 45	4
Friendship				1.00	1 00	17
Malone				1.07	1 00	4
New York				1.11	1 00	31
Port Jervis				2.25	1 50	4
Wedgwood		3.00	11			
West Point		2.50	8			
Willets Point				1.10	1 00	31
North Carolina.						
Blowing Rock		2.54	16			
Currituck Inlet		2.70	16-17			

TABLE XIII.—*Excessive precipitation*—Continued.

Stations.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
North Carolina—Cont'd.	*Inches.*	*Inches.*		*Ins.*	*h. m.*	
Fair Bluff	11.42	3.40	16-17	1.07	0 20	13
Goldsboro		3.70	12-13			
Highlands		3.98	15-16			
Horse Cove	12.54	5.24	15-16			
Do		2.57	21			
Lenoir				1.15	0 40	6
Littleton		2.50	16-17			
Lynn	11.06					
Rutherfordton		2.80	16-17			
Salisbury				1.00	1 00	6
Skyuka	10.67					
Sloan		2.62	30-31	2.34	0 50	31
Wilmington				1.16	1 00	4
Do				1.20	0 50	16
North Dakota.						
Power				1.10	1 00	15
Ohio.						
Jacksonboro				1.10	1 00	29
Montpelier				1.16	1 10	11
New Berlin				2.00	2 00	17
Pomeroy				1.04	0 38	28
Oklahoma.						
Alva		3.85	10	3.85	3 00	10
Burnett				1.21	1 05	3
Enid		2.83	15			
Guthrie		2.85	13-14			
Keokuk Falls				2.16	2 00	24
Sac and Fox Agency	10.10	3.10	16	2.70	2 00	24
Do		2.70	24			
Pennsylvania.						
Chambersburg		2.56	30-31			
Farrandsville		2.96	6-7			
Forks of Neshaminy		2.91	4			
Karthaus				2.00	2 00	11
Point Pleasant		3.70	4			
Saegerstown		2.58	6-7			
Smiths Corners		3.48	4			
Rhode Island.						
Block Island				1.58	1 20	7
South Carolina.						
Allendale	11.18	2.90	3-4			
Do		4.90	21-22	2.80	2 30	21
Cheraw				2.00	1 30	26
Conway		4.63	3-4			
Edisto		2.54	13-14			
Greenwood	10.04					
Holland	12.00	4.53	22			
Kingstree				2.27	2 00	27
Mount Carmel	11.33	4.27	21-22			
Pinopolis	11.58			1.19	0 50	1
Ridgeway		2.60	16			
St. Matthews	11.58	2.50	8	2.50	1 00	8
Do		2.50	29	2.50	1 40	29
Trenton	11.49					
Trial	10.85			2.06	1 30	26
South Dakota.						
Pierre				1.52	1 13	7
Tennessee.						
Jackson		2.60	30			
Lynnville		2.50	31			
Newport				1.00	1 00	6
Texas.						
Coleman		4.46	21			
Columbia				1.75	1 30	17
Dean		4.09	23-24			
Fort Stockton		3.10	31			
Fredericksburg				1.89	0 20	16
Galveston		3.61	29-30	2.C	1 13	29
Leakey		4.00	17-18			
Orange				2.01	1 40	23
Virginia.						
Callaville				1.10	1 00	12
Clarksville		3.00	16			
Grahams Forge		2.61	17			
Sunbeam				1.31	0 50	18
West Virginia.						
Bloomery				1.15	1 00	5
Elkhorn				1.87	1 14	17

TABLE XIV.—*Maximum rainfall in one hour or less, August*, 1895.

Stations.	Maximum rainfall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		*Inch.*		*Inch.*	
Atlanta, Ga.*	0.30	17	0.40	17	0.76	17
Baltimore, Md.	0.23	31	0.46	31	0.78	31
Bismarck, N. Dak.	.....	.....	.....	.....	0.07	9
Boston, Mass.	0.29	18	0.38	18	0.93	18
Buffalo, N. Y.	0.14	17	0.21	17	0.58	24
Chicago, Ill.*	.....	.....	.....	.....	.....	.....
Cincinnati, Ohio	0.25	27	0.37	27	0.95	27
Cleveland, Ohio	0.21	3	0.38	3	0.58	3
Denver, Colo.	0.02	22	0.03	22	0.15	22
Detroit, Mich.	0.10	6,28	0.15	28	0.25	6
Dodge City, Kans.	0.30	4	0.50	4	0.78	4
Duluth, Minn.	0.19	9	0.21	9	0.25	9
Eastport, Me.	0.15	18	0.22	18	0.74	18
Galveston, Tex.*	0.54	29	0.93	29	2.32	29
Indianapolis, Ind.	0.22	6	0.32	6	0.50	6
Jacksonville, Fla.	0.30	13	0.51	13	0.67	13
Jupiter, Fla.	0.27	11	0.52	11	1.48	11
Kansas City, Mo.	0.28	5	0.47	5	0.95	5
Key West, Fla.	0.42	6	0.65	6	1.13	6
Little Rock, Ark.	0.23	20	0.44	20	0.98	20
Louisville, Ky.	0.33	4	0.35	4	0.38	4
Marquette, Mich.	0.15	17	0.20	17	0.34	17
Memphis, Tenn.	0.13	20	0.17	20	0.26	20
Milwaukee, Wis.	0.28	27	0.37	23	0.68	23

TABLE XIV.—*Maximum rainfall*—Continued.

Stations.	Maximum rainfall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		*Inch.*		*Inch.*	
Nantucket, Mass.	0.30	12	0.45	12	0.80	12
Nashville, Tenn.	0.15	30	0.18	25	0.35	25
New Orleans, La.	0.35	20	0.57	20	0.93	20
New York, N. Y.	0.42	7	0.68	7	1.11	31
Norfolk, Va.	0.25	27	0.36	27	0.61	27
Omaha, Nebr.	0.50	27	0.75	27	1.32	27
Philadelphia, Pa.	0.17	29	0.22	29	0.29	29
Pittsburg, Pa.	0.35	18	0.43	29	0.91	29
Portland, Me*	0.09	31	0.15	31	0.70	24
Portland, Oreg.	0.05	30	0.07	30	0.20	30
Rochester, N. Y.	0.28	17	0.41	17	0.62	17
St. Louis, Mo.	0.19	10	0.29	10	0.40	26
St. Paul, Minn.	0.25	9	0.37	9	0.59	9
Salt Lake City, Utah	0.01	18	0.02	18	0.02	18
San Diego, Cal.	0.00	.....	0.00	.....	0.00	.....
San Francisco, Cal.	0.00	.....	0.00	.....	0.00	.....
Savannah, Ga.	0.43	3	0.65	3	1.89	3
Seattle, Wash.	.....	.....	0.01	21	0.06	21
Vicksburg, Miss.	0.32	11	0.41	11	0.51	11
Washington, D. C.	0.10	27	0.19	27	0.29	27
Wilmington, N. C.	0.32	13	0.45	13	1.20	13

*Record incomplete.

Chart I. Tracks of Centers of Low Areas. August, 1895.

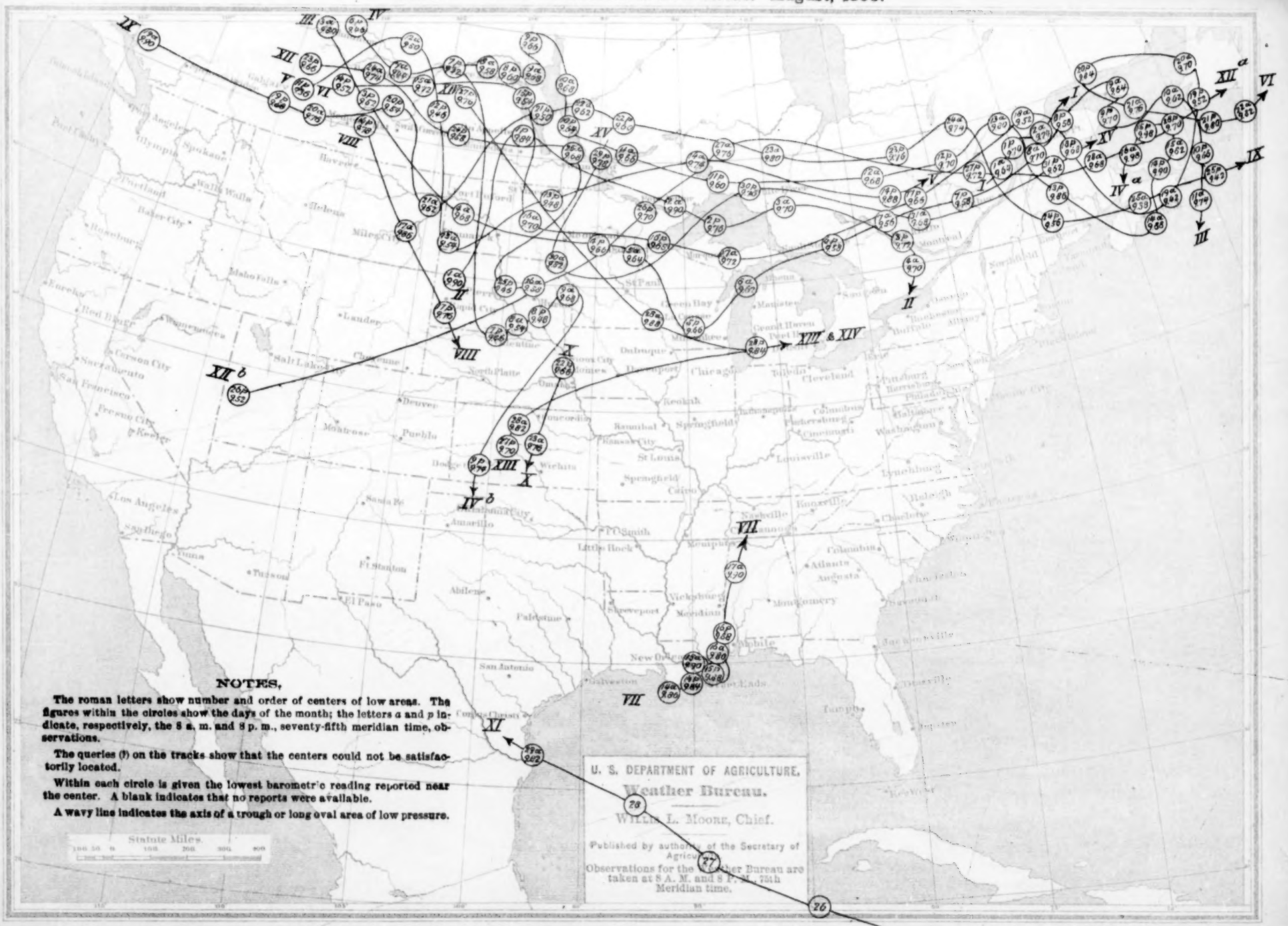
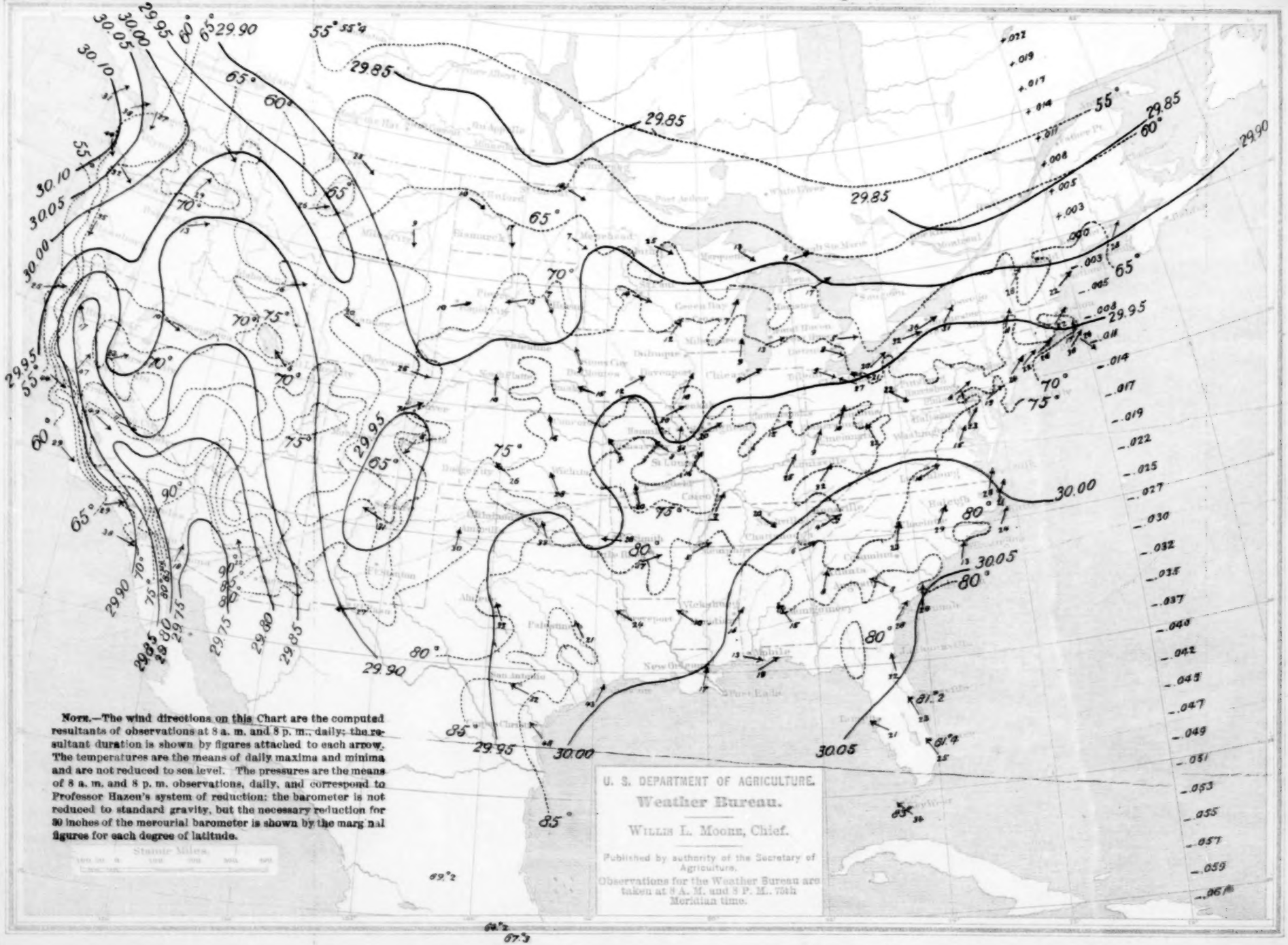

NOTES.
The roman letters show number and order of centers of low areas. The figures within the circles show the days of the month; the letters a and p indicate, respectively, the 8 a. m. and 8 p. m., seventy-fifth meridian time, observations.
The queries (?) on the tracks show that the centers could not be satisfactorily located.
Within each circle is given the lowest barometric reading reported near the center. A blank indicates that no reports were available.
A wavy line indicates the axis of a trough or long oval area of low pressure.
Statute Miles.
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
WILLIS L. MOORE, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A. M. and 8 P. M., 75th Meridian time.

Chart II. Isobars, Isotherms, and Resultant Winds. August, 1895.



NOTE.—The wind directions on this Chart are the computed resultants of observations at 8 a. m. and 8 p. m., daily; the resultant duration is shown by figures attached to each arrow. The temperatures are the means of daily maxima and minima and are not reduced to sea level. The pressures are the means of 8 a. m. and 8 p. m. observations, daily, and correspond to Professor Hazen's system of reduction: the barometer is not reduced to standard gravity, but the necessary reduction for 30 inches of the mercurial barometer is shown by the marginal figures for each degree of latitude.

Chart III. Total Precipitation. August, 1895.

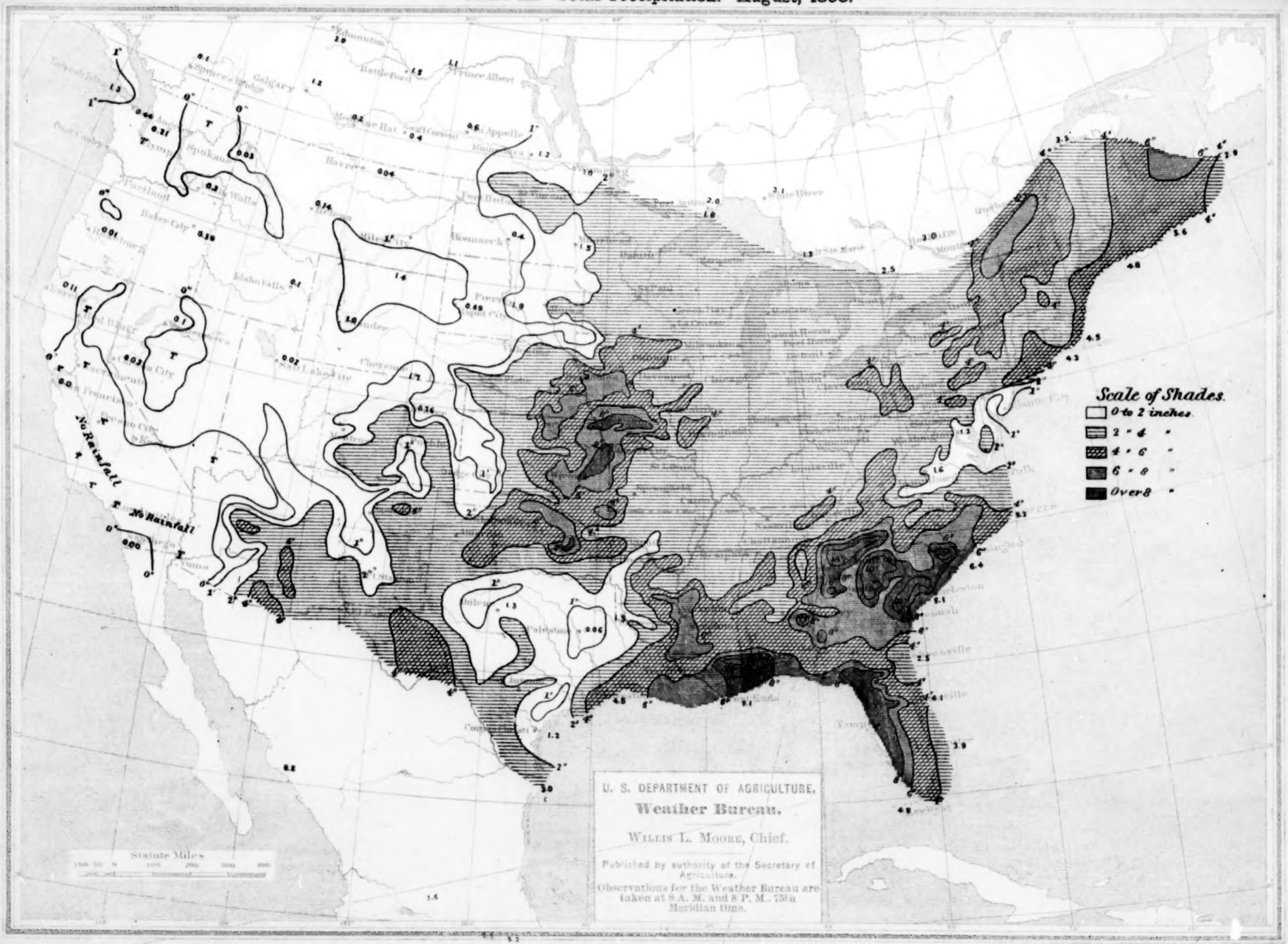

Scale of Shades.
0 to 2 inches.
2 " 4 "
4 " 6 "
6 " 8 "
Over 8 "
No Rainfall
No Rainfall
Statute Miles
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
WILLIS L. MOORE, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A. M. and 8 P. M., 75th Meridian time.

Chart IV. Tracks of Centers of High Areas. August, 1895.

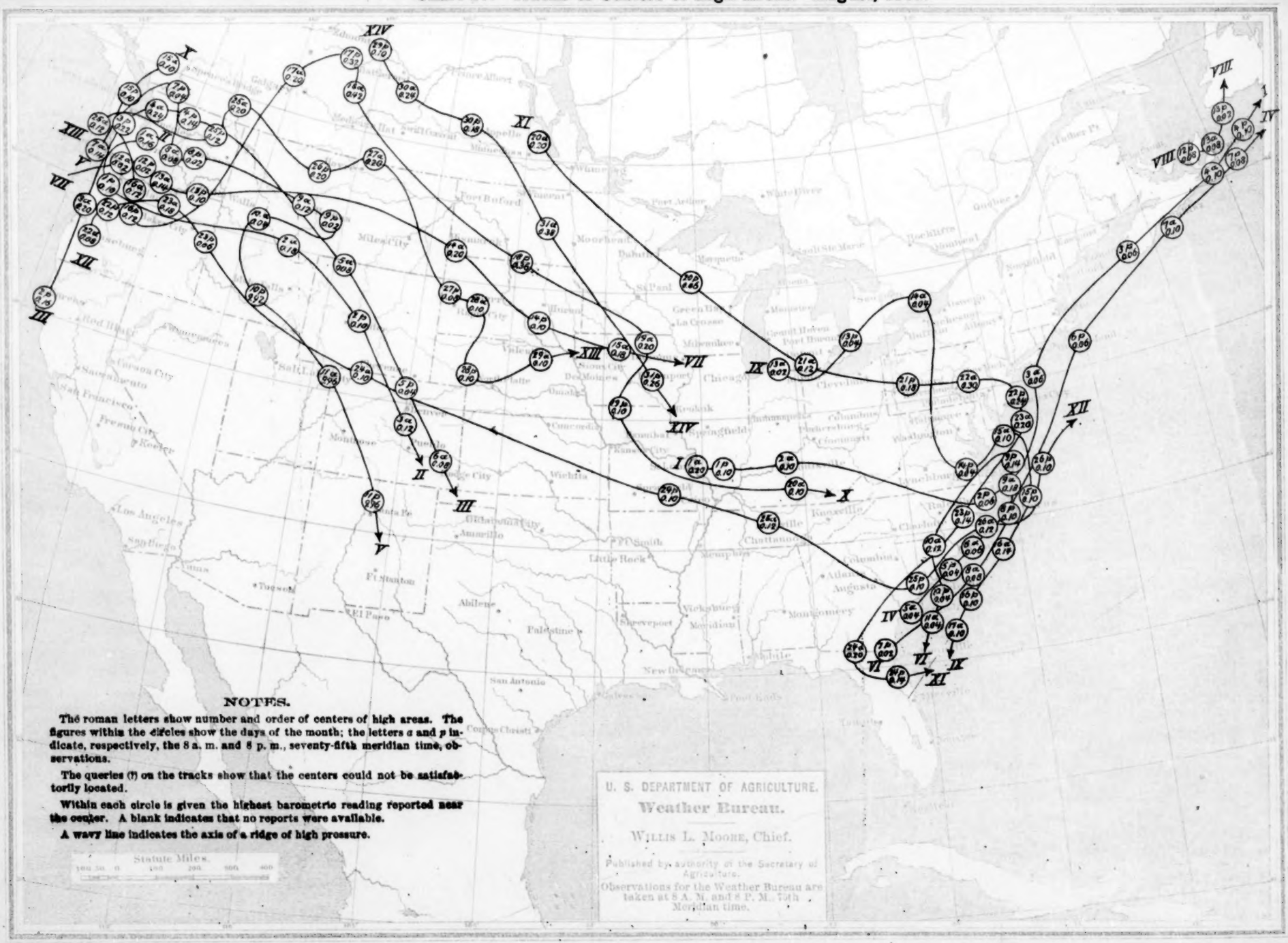
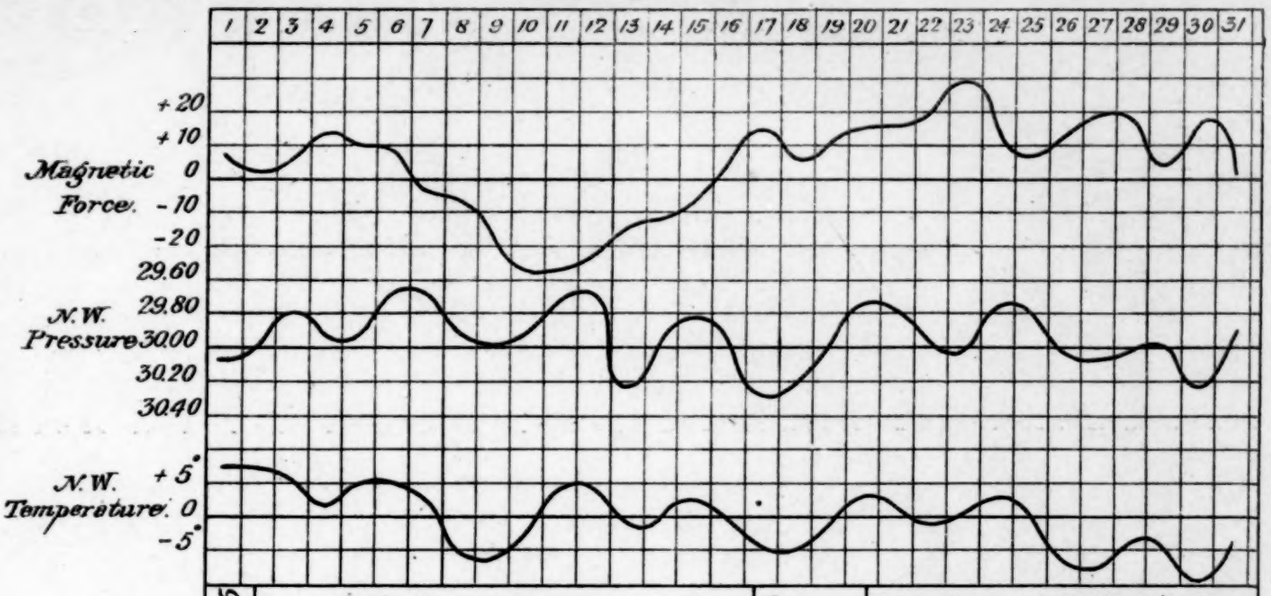

NOTES.
The roman letters show number and order of centers of high areas. The figures within the circles show the days of the month; the letters a and p indicate, respectively, the 8 a. m. and 8 p. m., seventy-fifth meridian time, observations.
The queries (?) on the tracks show that the centers could not be satisfactorily located.
Within each circle is given the highest barometric reading reported near the center. A blank indicates that no reports were available.
A wavy line indicates the axis of a ridge of high pressure.
Statute Miles.
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
Willis L. Moore, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A. M. and 8 P. M. 75th Meridian time.

Chart V. Relative Variations of the Horizontal Magnetic Force and the Northwest Pressures and Temperatures.



August 1895	North West Temperatures							Pressure	Horizontal Magnetic Force				
				Variations.							Variations.		
	Calgary	SaltLake Cy.	Williston	Calgary	S.Lake Cy.	Williston	Means+6	10 North West Stations	Toronto	Washington	Toronto	Washington	Means+2
1	66	74	74	0	0	+2	+7	30.06	439.0	50.1	+7	+1	+6
2	67	75	74	+1	+1	0	+7	29.99	438.0	50.0	-2	+1	+2
3	65	76	71	-1	+2	-1	+6	.79	438.5	50.0	+4	+2	+5
4	62	75	67	-4	+1	-5	+3	.91	438.6	51.2	+6	+15	+13
5	66	73	69	0	-1	-3	+5	.95	438.0	51.1	+1	+15	+10
6	66	71	70	0	-3	-2	+4	.71	438.9	49.5	+11	0	+8
7	61	74	67	-5	0	-5	+3	..66	436.9	49.3	-8	-1	-3
8	55	73	65	-11	-11	-7	-4	.90	436.0	49.1	-16	-2	-7
9	54	60	63	-12	-14	-9	-6	.98	433.4	45.9	-41	-33	-18*
10	55	63	67	-11	-11	-5	-3	.91	432.4	42.8	-50	-63	-28*
11	62	70	74	-4	-4	+2	+4	.79	432.7	42.7	-46	-63	-27*
12	61	75	74	-5	+1	+2	+5	.66	433.2	43.3	-40	-56	-23*
13	56	70	65	-10	-4	-7	-1	30.13	434.0	46.1	-31	-27	-14*
14	57	65	69	-9	-9	-3	-1	29.94	436.0	46.9	-10	-18	-12
15	60	71	73	-6	-3	+1	+3	.81	436.3	47.9	-6	-7	-5
16	56	72	65	-10	-2	-7	0	.97	438.0	48.0	+12	-5	+6
17	52	68	61	-14	-6	-11	-4	30.15	437.6	49.9	+9	+15	+14
18	53	65	61	-13	-9	-11	-5	.08	436.2	49.5	-4	+12	+6
19	55	68	64	-11	-6	-8	-2	.00	437.6	48.8	+11	+6	+11
20	58	70	74	-8	-4	+2	+3	29.73	437.6	49.2	+12	+11	+14
21	60	70	71	-6	-4	-1	+2	.80	437.7	49.3	+14	+13	+16
22	56	67	66	-10	-7	-6	-2	.93	438.0	49.2	+18	+13	+18
23	57	65	69	-9	-9	-3	+1	30.03	439.0	50.0	+29	+22	+28
24	60	69	73	-6	-5	+1	+3	29.75	437.2	48.6	+12	+9	+13
25	55	68	70	-11	-6	-2	0	.78	436.7	47.6	+8	0	+6
26	53	62	59	-13	-12	-13	-7	30.04	437.9	47.8	+21	+3	+14
27	54	56	60	-12	-18	-12	-8	.05	437.7	48.7	+20	+13	+19
28	57	63	65	-9	-11	-7	-3	.02	437.2	48.8	+16	+15	+18
29	51	65	62	-15	-9	-10	-5	.00	435.6	47.4	+1	+2	+4
30	50	64	52	-16	-10	-20	-9	.22	437.0	48.7	+16	+16	+18
31	56	62	65	-10	-12	-7	-4	29.93	435.6	46.8	+3	-2	+2

* See the Text.